

THOMAS BARTHOLIN

On The Burning of His Library
and
On Medical Travel

translated by

Charles D. O'Malley

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THOMAS BARTHOLINUS
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THE UNIVERSITY OF KANSAS LIBRARIES
LAWRENCE
1961

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Translator's Introduction

Thomas Bartholin, 1616-1680, was the son of Caspar Bartholin, at one time professor of medicine in Copenhagen and author of the well-known and influential *Anatomicae Institutiones*. However, the father was ultimately led by his convictions to divorce medicine for the sake of theology, and although the later generations of the family returned to medicine, the writings of Thomas Bartholin in particular reflect a piety no doubt promoted, if not induced, by the theological atmosphere of his father's home.

Thomas Bartholin was the most distinguished and literarily productive of the several notable generations of the family. After initial studies at home, in 1637 he began his years of travel with a period of study in Leyden. In 1640 he proceeded to Paris, thence to Orleans and Montpellier and on to Italy where he remained until 1645, and it was no doubt as a result of this longer sojourn in Italy that he was able, some thirty years later, to recall southern Italy so clearly in his little book *On Medical Travel*.

In 1654 Bartholin succeeded in locating the lymphatic vessels in man, his greatest claim to distinction, and while he was already professor of anatomy, appreciation of his work now led to his election as *professor honorarius* which freed him from routine duties and permitted full concentration upon his literary and scientific studies. At the age of forty-five Bartholin was the acknowledged leader of Danish medicine, generally popular and graced by royal favor. Under such conditions, in 1663 he purchased Hagedsgaard, an estate some distance from Copenhagen where he lived a placid life devoted to his books and writing.

As he remarks in his little work *On the Burning of his Library*, it was while Bartholin was attending the funeral of Poul Moth, his old teacher, that he was informed of the loss of his home and library by fire, a sad blow from which

he never fully recovered despite the brave show which he makes in his little book of consolation. As he remarks therein that his grandfather Thomas Finck always wept when he recalled a similar destruction of his library, so it is said that Bartholin always spoke with tears of the loss of his manuscripts.

If his library was gone, yet Bartholin's facile pen remained, and his tragedy became the subject for one more of his numerous compositions. *On the Burning of his Library* is a curious work of self-consolation filled with that recondite learning which has led to characterization of the seventeenth century as the age of erudition. The allusions and references make heavy going for the reader of today, as do some of the literary conceits which, however, seem somewhat less cumbersome in Latin than in English. Obviously Bartholin was a man of great erudition, and perhaps it was because of this, although much to his credit whatever the reason, that in that intolerant age he displays an uncommon width of tolerance and belief in the idea of a relatively free press.

Occasionally today one hears of fires consuming homes with the loss of some work still in manuscript, yet never a loss of such magnitude as that suffered by Bartholin, a prodigious worker with far ranging interests. Especially must one regret the loss of his antiquarian studies, but in any case his discussion of his lost manuscripts represents a valuable aspect of biographical information.

The second work translated hereinafter, *On Medical Travel*, was addressed to his sons Caspar and Christopher and his nephew Holger Jacobsen on the eve, May 1674, of their departure for medical study abroad. Again there is much display of erudition and a strong reflection of Bartholin the antiquarian. While he has written of his Italian travels in an orderly progression, yet this appears to have been done hastily without time for complete recollection,

presuming that his memory was strong enough for such a task. As a consequence some things are recalled with more vividness and detail than others, and this tends to produce a certain element of jerkiness in the account. Very clearly, however, Bartholin's remarks on Italy are the happy recollections of an old man, and what he has to say of physicians, hospitals, sugar-refining, viticulture, his own investigations of Aetna, somnolent Salerno and pious therapy are all of interest and some historical value.

His advice to his sons and nephew on the proper behavior of tourists is wholly commendable, and his remarks on seventeenth century physicians and medical centers are of more than passing interest since they represent the contemporary judgment of a distinguished physician on the state of European medicine. Indeed, the republic of science and letters appears to have been well integrated despite the slowness of transportation and communication, and in particular Bartholin's appreciation of English physiologists and physiology, which he knew only from afar, displays his wide knowledge of medical matters and ability to discriminate.

However, if progress in anatomy and physiology was demonstrable, Bartholin's advice on the maintenance of the traveller's health indicates how little advance had yet been made in therapy. The remedies, and especially the reliance on the word of Bernard of Gordon, a physician of the fourteenth century, and even the precepts of Avicenna, may appear astonishing if not shocking.

Of the three young travellers to whom Thomas Bartholin addressed his little book of affectionate advice, Caspar was the most impressed, if we may judge from his future development. Nevertheless, despite his father's reminiscent emphasis upon southern Italy, Caspar, employing other advice in the book, studied in the Netherlands with Sylvius and Swammerdam and especially with Du Verney in Paris.

It was this son who on his return to Denmark was chiefly responsible for upholding and continuing his family's distinction in the world of medicine.

It is a pleasant duty to witness assistance given by the National Science Foundation toward the preparation of these translations.

CHARLES D. O'MALLEY
Los Angeles, 1960

On the Burning of His Library

THOMAS BARTHOLIN
ON THE BURNING OF HIS LIBRARY
A DISSERTATION FOR HIS SONS

COPENHAGEN
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1670

THOMAS BARTHOLIN TO HIS SONS
CASPAR BARTHOLIN, CHRISTOPHER BARTHOLIN,
AND THOMAS BARTHOLIN

YOU HAVE OBSERVED with what constancy of spirit I recently accepted the flames which destroyed the better part of my library, since I believe it best to suffer without complaint those things which I am unable to amend and which manifest God as the cause of all things. You, my sons, who have been afflicted by the same loss have the same consolation. It may appear that profitable opportunity has been snatched away from you now that certain little studies of mine, which I had recommended to you for completion and publication if death were to seize me before my time, have been reduced to ashes. Yet there will never be lacking to you, climbing to better fruit, a region in which you may perform with glory. Your own excellence and ability afford you the honorable consolation of deserving well of the commonwealth, and I rejoice in your enthusiastic decision to bring to completion what you formerly began under happier conditions. Hence there remains enough to console us, and whatever may be the abuses of fortune, we shall bear them with such spirit as if we lived above the moon, that is, always with serenity. Farewell, and guide happily by your example your younger brothers Johannes and Albert. From my Tusculum. Hagestedgaard. 1 July 1670

ON THE BURNING OF THOMAS BARTHOLIN'S LIBRARY

It was disastrous to be so respectful. For it was while I was paying full respect to my deceased teacher, the revered Moth, that I was interrupted by the dire message that my dwelling at Hagestedgaard had been destroyed by fire, and together with the rest of the household goods the library, a collection of the most esteemed physicians and philologists who had lived in repose with me and daily consumed my leisure. Deprived of both preceptor and books, I sought to allay these misfortunes by the constancy of an unbroken spirit, and while such unforeseen disasters tried my spirit they did not prevail.

I must confess, however, that I had good cause for complaint. My peaceful Tusculum which had given me pleasure scarcely to be equalled elsewhere in Borea, was thrown into confusion by the fire. Here and there washed by the neighboring sea, refreshed by a salubrious climate and shaded by three woods, with fertile fields and flowering meadows, the land was everywhere harmless, able to support neither serpents nor dormice, while the broad farms of the peasants, the splendid buildings, the immunities which had been granted, the serene sky and general harmony had all increased my love of the estate. However, I have tempered my just grief to our common fate. Some say that the age of Phaeton, with whose negligence I do not desire to be charged, threatened Mystae. To be sure, no one believes that this world which we inhabit was completely burned, although Cicero, *De Natura Deorum*, bk. 2, writes that people of his day believed that this would occur, and it was also prophesied by Chrysippus. More manifest indications are displayed in the sacred memorials of our God, which persuade us that the world must be consumed by fire. Hence Ovid, *Metamorphoses*, bk. 2, "He remembers, too, that it was in the decrees of fate that there would be a time when the sea, the earth and the palace of heaven,

seized by flames, would be burned, and the costly mass of the earth imperilled."

Therefore I believe it would matter little if the destruction of the universe had taken origin from my dwelling, even if it had produced similar ruins. Nevertheless in my recent misfortune I was unable to refrain from muttering to myself, and I began to jeer at the old story of Vulcan and to consider it wholly as a fable. Once called the friend of Minerva, but later hostile, with one thunderbolt he had overthrown my library and the lucubrations of so many years that I was unable calmly to endure the fact that he is called the colleague of Minerva by Saint Augustine, *De Civitate Dei*, bk. 4, ch. 10, because, says Luis Vives, he with Minerva had charge of the thunderbolts of Jupiter. Indeed, that lame rascal also filled the sack of Aeolus. The same Luis believes that Augustine called Vulcan the colleague of Minerva because she was the goddess of the arts, even the manual ones which in Greek are called handicrafts, and he was the god of the instruments without which those arts could not be exercised. Furthermore, Vulcan himself was also considered to have had charge of the arts, for Eusebius says that customarily some of the arts, such as the warlike ones, were assigned to Minerva, and others, all those which require fire, to Vulcan. However much Vives may seek to support Vulcan, I proclaim to the memory of all ages that he is the destroyer of Minerva.

I speak now from experience, and the anatomical and surgical instruments, the anatomical and surgical books, the infinite medical and chemical secrets, and still more the antiquarians and philosophers will testify with me whether or not they were overwhelmed through the violence and tyranny of destructive Vulcan, as well as what was most important of all, the works accomplished by me under the guidance and auspices of Minerva, which would shortly have seen the light of day had they not been suffocated and

destroyed by the too great and ardent light of Vulcan. Some may deplore the savagery of this destroyer so that we lack copies of some books, and later generations, if they happen to remember my sad case, will attribute the sole copy to me.

There is no kingdom, nor court for which he has not prepared ruin. The same fortune awaited the Sybilline books, for when Tarquinius Superbus did not pay that price which a woman asked for the nine Sybilline books, six of them are said to have been consumed by fire, and the same price had to be paid for the remaining three. To dwell somewhat on this subject, there has been no people, no age, in which the best books have not suffered harm from Vulcan the destroyer.

If we unroll the annals of nations, the destruction of books has been accomplished either through hatred of persons or through the fault of content; and to others it has occurred through misfortune. It was through hatred of Jeremiah the Prophet that Joachim, King of the Jews, in the sight of his princes burned the scroll sent by the scribe Baruch, as Josephus relates in *Antiquities of the Jews*, bk. 10, ch. 8. Twelve thousand volumes in Hebrew were burned at Cremona in 1553, and similar savagery raged through the whole of Italy according to Jacobus Windetius, *De Vitae Functorum Statu*, repeated by Lomeferus, *De Bibliothecis*, ch. 3. On the island of Cnidus, one of the Cyclades, there was a library which Hippocrates, by reason of his ill-will, caused to be burned because those of Cnidus professed a sect opposed to his medicine. It is also said that Plato by reason of dislike sought to cause the burning of the commentaries of Democritus, except that he was prevented by the Pythagoreans Amyda and Clinia who asserted that they could not be suppressed since so many persons had copies of them. Similar stories are told of Aristotle who desired that the writings of the old philosophers be sacred to Vulcan so that he might more securely triumph over them.

The library of Constantinople, founded by Theodosius the younger in 473, and a rival to that of Ptolemy, in the reign of the Emperor Zeno was consumed by a fire instigated by the leader of the image-breakers, the [later] Emperor Leo the Isaurian. Earlier, in the time of Basilicus Tyrannus, the same library had perished in flames aroused by the plebs in their hatred of Basilicus, and among the books was the intestine of a dragon twenty feet long on which the *Iliad* and *Odyssey* of Homer had been written in letters of gold. But Claudius Clemens in his *Bibliothecae Instructio* considers that it had been snatched from the conflagration, because when Leo the Isaurian, struck by a mad fury against the sacred images, burned whatsoever volumes had been restored of the thirty-three thousand of the library, Constantinus, Cedrenus, Zonaras and Glycas testify that that intestine was still there, unless perchance, in a kind of veneration a new one had been fashioned in imitation of the former intestine which had perished in the first fire. According to the *Annals* of Constantinus Manassus, translated by Lewenclavius, in which the fire is well described, I am disposed to consider that one instigated by Leo III, the Isaurian, as the first.

“Not far from the shrine of Hagia Sophia earlier emperors had erected a splendid residence which might be called a delightful garden full of trees bearing books, so that a grove of very beautiful trees of all kinds of doctrine and wisdom had been established; for there was collected a treasure house of books to the number of thirty-three thousand. This great garden and grove had been entrusted to the maintenance and care of a certain admirable man who excelled in learning so that the brightness of his knowledge outshone that of all others; and you might say, not ineptly, that he was another kind of Adam, a divine caretaker of the trees, plucking delights from the beautiful trees of Eden, the cultivator of plants which do not wither.

Others as leaders of the second rank lived with him who was the commander of the first; in fact, they were bright stars illuminating the night in all directions and numerous as are the signs of the zodiac. They engaged in the instruction of those desirous of letters and learning, and together with that one of whom we spoke, shining among all like the sun, they removed the veil of darkness from their auditors and revealed not only that crumbling collection of Greek deceptions but, as well, the teachings of our most pure religion."

"So greatly was their worthiness esteemed that not even the emperors believed that they ought to attempt to do anything new or unusual without their advice. Therefore the Emperor [Leo] thirsted to seize and ensnare these men, distinguished by their unusual authority and innocence of life as well as the bountiful supply of their gifts, and to make them participants in his impious madness. However, when all his attempts had been in vain (for he was unable to win them to his desire by threat or fear, and when he sought to employ gold—otherwise an unconquerable ally—he discovered that he was pursuing an eagle, and wished to reach the stars at one cast) despairing in the matter—to whom, I ask, need I explain these things—he adopted a savage, stupid and impious plan that not even the inhuman Scythians or Massagetae would have undertaken. Ordering dry and inflammable faggots to be gathered, he caused those excellent men to be burned with their books. Alas, that there should be a mind so hostile to virtue, a spirit so monstrous. Surely the character of that savage lion was fully recognized. Whatever was most noble of all disciplines had been preserved there, and among other things was that admirable volume made from the intestine of a dragon on which the Homeric books had been written, the whole of the Iliad and the Odyssey." This according to Constantinus.

Alexander Pseudomantes burned the books of Epicurus

with fig-wood, signifying that the philosopher was of no value. Tacitus in his *Annals*, bk. 4, remarks that Tiberius executed Cremuntius Cordus, a wise and learned man, and ordered his books to be burned by the aediles. According to [the elder] Seneca, *Suasoria*, ch. 7, Cicero deliberated whether or not to burn his writings, on the promise of Anthony that if he did so he would remain unharmed; for Anthony, inflamed by hatred of Cicero, wished to destroy his books so that with his reputation gone, the greater penalty might be relinquished. But P. Asprenatis, among other matters, spoke elegantly in this fashion: Trust yourself to the Roman people against Anthony; if you burn your writings Anthony promises you a few years of life, but if you do not burn them the Roman people promise you immortality.

Here and there famous manuscripts have perished through pernicious zeal against libraries, or rather through hatred of their possessors, and here and there we find ruined pieces of these manuscripts which have been cast to the winds. Sleidan and Johannes Wigandus in their historical commentaries discuss such things practised by the Anabaptists at Münster, and among others a certain Joannes Matthaeus, proclaiming that it had been revealed to him by the heavenly father that no books should be left in the city except the sacred Bible, all the others were carried into an open space near the main church as an offering to Vulcan. Such was the result that forthwith a great heap of books valued at 20,000 gold pieces was burned. Of the notable library erected by Julian the Apostate in the temple of Trajan, I recall the remark that it was burned by Jovinianus upon the urging of his wife, and the torches were applied by concubines.

Those have greater reason for the deed who sentence books to the pyre not through ill-will against the authors but through dislike of the subject, either impious or op-

posed to the decrees of princes. The books of Prothagora were burned in the forum at Athens because he denied the immortality of the soul. The same in regard to Pomponazzi, and the same loss of life and of books teaching atheism. The Roman senate, through Q. Petilius the praetor of the city, and in an assembly of the people, burned the Greek books of Numa which seemed in some degree to oppose the religion. In the judgment of Lactantius, *De Falsa Religione*, bk. 1, ch. 22, it was meaningless, for of what advantage was it that the books were burned since that for which they were burned, the fact that they denied the religion, had been handed on to memory. Everyone then in the senate was very stupid, for although the books could be destroyed yet the matter of them was recalled. Through hatred of the true religion Antiochus Epiphanus burned many manuscripts. See the annals of the Macchabees. The irreverent Achaz burned the books of the law lest through them idolatry be censured. Similarly Herod, lest the lack of nobility in his family be disclosed, burned all the genealogical books of Solomon, and in the time of the persecution of Diocletian the churches were destroyed and the Scriptures burned, as if it were in the power of the tyrant through the destruction of one codex to overthrow the established cult of the eternal God revealed by other memorials.

There are Christian zealots not lacking in piety who urge the burning of heretical and blasphemous books: if only they be not mistaken as to the heretics or censure with forbidding coals those books in which the theanthropic Christ is the foundation of faith and confession, for they use that license of the kingdom of God as if they were employing the punishment of fire against books which contain some crime against the prince. Reverence for the good ought to be characterized by honor and reverence, not defamed by blasphemous pens. Against Arius and his

books there exists the edict of the most Christian emperor Constantine to the bishops and people which deserves to be read here since it sheds light on this subject:

Since Arius follows the custom of impious writers and men, he deservedly ought to undergo with them the same mark of ignominy and shame. Just as Porphyrius, the chief enemy of piety, who formerly published wicked books against Christian piety, received payment worthy of his labor, and of such sort that in later times he was harried not only by the greatest disgraces and stained by the most shameful infamy, but also his impious writings were destroyed and wholly extinguished, so too in the case of Arius and his sectaries called Porphyriani; as they have the name of those whose conduct they have followed, if the writings of Arius are discovered, let them be burned. We also order that if anyone is found to have concealed that book written by Arius and does not immediately bring it forward to be burned, let him be put to death.

My library paid the penalty to Vulcan for these things, but in one respect I am more fortunate because I, with no offensive impiety to God or to prince, saw the funeral pyre of my library; it contained nothing which was worthy of burning, no line had flowed from my pen which might wound God or offend the king or fail to instruct or to entertain the world. Everything was the opposite of improper, and the sentence was not for prohibited books but for a merited rest from labors. God be praised that we have passed that age in which there were penalties for talent and martyrdom for good books. I am, therefore, filled with great hope and confidence that despite the bad example of Labienus, who did not desire to remain alive when his writings had been burned, despite the memorial recently

prepared in the church of the Blessed Virgin for my ultimate death, I am permitted to remain alive. For I had feared that as with Labienus, the fire which was applied to name and books might also reach the body.

Nor need friendly readers be apprehensive for themselves if in the past they spent some hours reading my books. According to Seneca, when by decree of the senate the books of Labienus were burned, Cassius Severus, his close associate, remarked: "Now I who know them by heart must be burned alive." One need not suffer for those works which I have published, and the unpublished will be burdens to no one, neither to themselves nor to their author. I bear the calamity more bravely because it has long been customary for Vulcan to rage in our family. Those very famous medical and mathematical books of my revered grandfather, Master Thomas Finck, were consumed by fire, a loss which the venerable old man never recalled without tears although he was otherwise unaffected by emotions.

In addition either to my sin or to the hatred of others, I recognize fortuitous accidents, but not without the will or consent of God, as according to Ireneus, bk. 3, ch. 25, where we are taught that by great misfortune when Jerusalem was taken by the Babylonians the sacred books were burned at the same time as the temple. During the time of L. Antoninus Commodus when the Capitoline was struck by lightning, the fire was drawn to the library collected through the great effort of the pious. All ages mourn the Alexandrian library of Ptolomaeus Philadelphus, erected with care and expense and burned through no plan or evil design but by the auxiliary troops of the emperor. The damage occurred when the nearby buildings and dockyards were burned, and Seneca writes, *De Tranquillitate Animi*, ch. 9, that 400,000 books were burned there in a very beautiful building of regal opulence. However, Ammianus Marcellinus, bk. 22, raises the number to

700,000. When the library had been restored by Cleopatra, it suffered the same fate, for Athanasius, *De Persecutione Orthodoxorum*, bk. 1, remarks that it was burned by Arian. The annals of Britain inform us that in England the library of York, together with the cathedral church founded by Egbert, Archbishop of York, was engulfed by an accidental fire during the reign of Stephen.

Thus these things were unlooked for and occurred unexpectedly so that it seems as if the gods distribute calamities blindly. Yet if you trust a stoic, no disease, captivity, ruin or fire is by chance, for the wise man knows in what a turbulent common dwelling nature has shut us. He knows that there is little untroubled repose, and when fortune shines most brightly it may be shattered like glass. Everywhere Aeolus produces shipwreck and Vulcan as fire, the destroyer of Minerva, greatly oppresses even the prudent, so that if you yourself warn him away from your house, sparks rush toward it from without.

Claudius Clemens, *Bibliothecae Instructio*, bk. 3, ch. 9, borrowing from Bartholomaeus of Bologna, tells of the library of the grammarian Antonius Urceus who lived in the inner chambers of the palace, assigned a room so dim that even in the daytime it required the light of a lamp. When he left it to attend to matters outside and imprudently failed to extinguish his lamp, all was destroyed by fire, the books burned, and among them that one which he had composed under the title of "Pastor." In the loftier and more open part of the library he had engraved this inscription: "Brilliant studies light the lamp with brilliance." For a long time I had been secure from this danger since to avoid eyestrain I had not measured my studies by the lamp for twenty years but shared them with the sun. Be that as it may, Vulcan attacked our lares by external snares, and it was not through the fault of the domestics that he destroyed our Minerva; but even though he involved the

brain of Jupiter in this catastrophe he was unable to effect all he attempted. He sought the downfall of the Muses, but like the phoenix they have been restored to life from their ashes. Indeed, they resemble certain little beasts of which Aristotle speaks in his *Historia Animalium*, born winged in brass furnaces and living in fire. Others testify similar things of the salamander, but this like the dog of the Nile, in passing through fire eludes it by means of its viscous skin. It does not delay in the fire but flees it.

I offered nourishment to the raging fire by consecrating my papers to eternity and testing their behavior in the purifying flame. Once risen to the sun they were examined for legitimacy. The foetuses of my talents and labor were also examined by the fire and found neither vital nor legitimate; because of their immaturity they were further matured by the fire. Thus I was consoled for the unhappy burning of my estate and my library, and I believe that God mercifully granted and imposed upon my increasing years a rest which I had hitherto denied myself because of the publication of various works. I had to be coerced by fire lest I continue to lend myself to many cares or wrest paper and writing material from others. I should not consider the fire from elsewhere than from God either ordering it as a punishment or permitting it as a test, perhaps started by innocent children roasting small birds for a noon-day meal and unaware that they were preparing tinder for burning my wings. I have condemned soothsayers and I still do not consider them of any significance, certain that the instrument was the burning fire of God. Rather, I have learned soothsaying from fire, of which according to Pliny the originator was Amphiaraus, and soothsaying from smoke, unknown to me before, so that I might gain wisdom from smoke and remain constant under adverse indications.

Vulcan has exercised control over my goods, not my spirit, and he has raged among innocent papers so that he

might instruct me in steadfastness. If the world were to be destroyed by fire the ruins would find me dauntless, since the good mind which God gave me and philosophy completed remains. I do not care for the fiery daemon, but with submissive reverence I worship the god of the fire. Palladius, a disciple of Evagrius, tells in the *Historia Patrum* how the fiery daemon had molested a youth protected by Saint Macharius, who after he had eaten the bread of three fires and drunk a cup of water, eructating both, he turned the food into steam, for he had consumed food and drink not otherwise than as fire, like a flame introduced by God and so extinguished by him when it reached the limits predetermined for it.

I do not admit other incantation although there are those who proclaim that fire may be aroused and extinguished by a curious practice. Epiphanius notes that a certain Joseph, recently converted from Judaism to the Christian faith, was building a temple to the Lord when through a stratagem of the Jews the lime pits were prevented from heating. Ordering a vessel of water to be brought to him, he made the sign of the cross over it saying, in the name of Jesus the Nazarene whom my fathers crucified and of the Jews standing about here, let there be virtue in this water for trial of the incantation and magic which they have made and for the efficacy of the power of fire in the completion of the Lord's house; and with his own hands he sprinkled the water on the furnaces so that the incantation was broken, and at once the fire sprang up. There are those who say that fire is arrested by a red cock, while others suggest by a nod and certain words, but it is only by God who has command over the elements and whom we must obey without demur whatever his unchangeable law orders. I would prefer that the rest of my goods had been burned than to know that they had been saved contrary to God's will.

Nor must fire always be considered as a sign of God's punishment, although none of us lacks sin. Often the flames have displayed his kindness. When Moses, Elijah and Solomon performed sacrifices, fire was sent down from the sky and burned and consumed the victims as an indication of singular favor. The pagans believed the same of their gods. When wood had been placed on the altar, of its own accord it burst into flame for Seleucus Pell performing the sacred rite. Flames suddenly leaped forth from the heaped up but not yet burning wood on the altar of Egnatia, the nymph of Apulia. Bundles of brushwood of their own accord took fire on the volcano near Petra in Sicily, and when charcoal was added it burst into flame although no wind was blowing. Caspar Peucer regards these latter phenomena as fables, *De Praecipuis Divinationum Generibus*, and that after the people had been blinded through enchantment fire was applied by the devil.

Furthermore, consideration proclaims the kindness of the fire introduced by the gods. As we have been taught by the various documents of the ancients, so in the book *De Luce Animalium* fire is mentioned among the signs of joy. Hence the origin of lamps in the worship of the Jews as well as of the Christians who had this from the Romans whose handsome temples were brilliant with pine torches. On this matter see Joannes a Chokier, *Facis Historiarum Centuriae Duae*, cent. 2, ch. 8, who, as one may observe, gathered much evidence. Also fire was the omen of joy for the approaching guests, not that fire, as Seneca says, which was accustomed to burst forth from the kitchens of the elegant and terrorize the watchman, but that moderate one which signified that the guests had come. It was considered of such value among the Persians that Strabo, *Geographia*, bk. 15, remarks that they sacrificed to fire and water, placing dry wood, stripped of bark and rubbed with fat, on the fire; then oil was poured on and the fire lighted from below.

Nor was it breathed on but fanned, for if anyone blew his breath on it or placed anything dead or dirty on the fire he was punished by death. Hence the Persians and Egyptians considered it a crime to cremate the dead, for the Persians believed fire to be a god or, as Sextus Empiricus says, *Adversus Mathematicos*, bk. 8, in the translation of Hervet, "they compared fire to the gods, wherefore unlike the Romans and barbarians they judged it not right to offer the human cadaver to God." Indeed, they compared fire to beauty, for says Xenophon, fire burns only those touching it but beauty inflames even those standing afar. On this subject consult Stobaeus, *Sermones*, 64, *Nupt. Nero*, that monster of the human race, drank in the beautiful spectacle of Rome burning.

Among the Romans perpetual fire designated the eternity of the empire, and the Vestal Virgins were accustomed to serve for this purpose. Why so? Because just as nothing is born from a virgin, so nothing from fire, Saint Augustine, *De Civitate Dei*, bk. 4, ch. 10, and they performed the duty of common purity and revealed evidence of a very vigilant government, for fire is the sign of vigilance. Hence fires aroused the scouts, by no means unknown in Trojan times. Virgil, *Aeneid*, bk. 6, "Held in their midst herself a mighty torch, And called the Danai from the fortress height." They signified things worth knowing to the emperors. Apuleius, *De Mundo*, bk. 1, "They were of that number, runners by day and scouts by night, and by turns they signalled to the emperor in one day from all the high places of the kingdom what had to be known." Such are the benefits of fire which I have experienced to my injury, but which I interpret as the solace of that injury. A wise man accepts all misfortunes which occur as good things because, since they are unable to injure or to break a spirit prepared for each, except only in their seizure upon external things, they impress a lighter sense of pain on the body. I saw no good reason to depart

from my accustomed tranquility of spirit since my wife was unharmed, my children survived and I myself was unharmed, so that I am able to paraphrase the wish of Bilblicus to Theodorus from bk. 11, ep. 94.

Flames carried off the Pierian Penates of the poet Bartholin. Does this please the Muses and you Phoebus? Thanks to the favor of the god, this great crime did not burn both domicile and dominus. A sacrifice was made of my goods, not of all of them but of the least. My felicity has grown daily through the space of fifty-four years, my faculties have been augmented by the kindness of God. Why should I bear a slight sacrifice grievously. I have paid tribute to God already, but moderately since he often imposes more heavily on others. My dwelling, purchased and restored at great cost, was destroyed so that it may be restored more splendidly and pleasantly according to the laws of architecture. The land was saved, the granary remains, the forests, meadows and fields flourish. Of about fifty farms subject to my estate, only eight were burned so that they may pride themselves on the immunities from taxes indulgently granted by the king. God ruined my purse so that he might render it more ample. A very indulgent king favors me with his kindness. Friends at home and elsewhere condole and watch for opportunities to compete in services so that they prove themselves to be true friends.

What more? I must not deplore the burning of my chosen books which served my unostentatious study, because either I am able to buy them again for money, or because they have already been sufficiently read and I can do without them in my old age. There remains one palpable cause of grief for the burned books which does not concern me as much as it does the public. That loss is a public one and deprives every mortal because it is irreparable. I, carrying with me everything I know, feel that I have been relieved of an immense and heavy burden. Now no one envies

my leisure, but is unaware that in it I was more burdensome to myself than useless to others. I am now too old to be the slave of a library not otherwise than as in bondage to the talent of others. Hereafter if through the forgetfulness of age I shall have lost anything which mind and pen were accustomed to explain, I shall devote myself to those more valuable matters concerned with meditation upon death so that I may depart from life better and more felicitous. Time warns me and God, almost as if a signal had been given by a sentinel's fire, has ordered that I collect my pack and seriously consider another way of living, that I reject mundane affairs which hitherto either occupied my mind or wearied my pen, and that I concern myself wholly with the immortal concerns of God and spirit.

I had believed that letters were immortal, but now I have learned of their mortality from Vulcan. Only the mind flees mortality, and if we may believe the account of Stobaeus, *Sermones*, 22, *consulat.*, although the Egyptians held the belief that fire is a kind of animated beast which devours and consumes whatever it seizes but when it has been sated dies away, itself as well as what has been devoured by it, nevertheless it is unable to consume those things which are unable to be consumed by eternity itself. Immodesty plays no part in what has already been said, since in the worship of Vulcan all things were cremated by fire, of which Gyraldus discourses in *Historia Deorum*. The spirit like gold is purified by fire, it is not injured. And truly, according to Saint Augustine, *De Civitate Dei*, bk. 12, ch. 4, fire itself applied as a penalty—or as others read, contrarily—is a pernicious thing, but used properly is found to be extremely advantageous. Some animals are said to live healthfully and by preference in that heat which seems unpleasant; and by its violence we are prudently and piously warned.

I have dared to promise continuance of fame for the ashes of my books which either the wind scatters or we

tread upon. They live in the mouths of men, they live in my remembrance, they live in the desires of the learned, and if we may see again the age of Phoenicia, their dust will quicken the neighborhood. Often I have crossed their pyre in deep thought. The mingled remains of the books seem like animals which place certain things around their lairs lest they be discovered. I mourned over them, but then rejoicing in repose I saw that there is no difference between timber and paper except that when the former is scattered it is enveloped in silence, but the latter is discussed by me, by friends, in newspapers and is constantly revived. So long as the human race has remained unimpaired, so long as it has employed letters, there will be honor for books which must now be read without letters.

You learned ashes, the greatest hope for my reputation, but as an immense and grievous ruin scarcely suitable as the conclusion of my labors, would that the pious care of my hand might move you; alas, the recollection is painful and difficult. But why? The fates plead that you be granted long repose, but without night. So it pleases you to lie concealed. We shall attempt by our joint efforts that our flame may bear our names to the heavens.

You were announced before your birth and before you could be brought forth with the applause that all ages might have given to your birth. You have moved to immortality by this easy step, because you have come before the public without the affront of type and to fame without worms. What difference is there whether you have been consumed by cockroaches and worms or by fire. You will not be the last, nor were you the first to suffer this fate. It was an indication of your love that with your fostering home burning you submitted to those same flames just as among the Hindus the wives are consumed on the pyres with their husbands. Among the ruins you speak the purpose of your author in a way that is impossible to syllables, sealed in

dust, perpetual witnesses of my diligence or erudition. And so I have said a last farewell to your ashes in this inscription.

IN MEMORIAM

You spectator who pass by, see and mourn for the erudite embers. These learned ashes mixed with profane do not cease to speak, although they lack both letters and tongues. They of whom posterity speaks, struggling even with their own ashes, of which the flame was able to consume the content, never in the world, never out of memory. Go swiftly lest the dust may be moved and vainly offend my eyes which occupied themselves so pleasantly with the dust of these books before they were ashes

In addition, that it may be clear to the learned and inquisitive world what works have been lost, they must be enumerated, elaborated by my efforts for the *Deperdita* of Pancirolli, because I do not usually write twice nor am I disposed to point out the titles of books to which it is painful for me to refer. Usually there can be read in publishers' catalogues the titles of many books whose publication is awaited at some future fair. Here the reader will see what he may desire in the future but will never read. If I had never achieved anything beyond these lost works sufficient praise would have redounded to me and advantage to the public. Now it can be testified that I have many proofs of my life in addition to my years.

I. CELSUS DE MEDICINA NOTIS VARIIS MEDICIS, PHILOLOGICIS
& ANTIQUARIIS A ME ILLUSTRATUS, CUM VARIIS LECTIONIBUS
& LEXICO CL. V. JOH. RHODII.

This work was long desired by the learned world and had been promised for thirty years by Rode although he never seriously put his hand to it except to collect—but with great care—variant readings from the manuscript codices of

Florence, the Vatican, Milan and elsewhere, and from all the printed editions. All these without reservation came into my possession through the good offices of our late colleague Master Thomas Bang, who was heir to the estate of the widow of Rode. Rode had promised emendations which I was never able to obtain, and finally he composed a lexicon to which he devoted the greater part of many years. I took it upon myself to elucidate the whole author by medical and philological notes, and this plan had already brought me to the end of the fifth book, everywhere adding my judgment to the variant readings as they had been collected by Rode or added by me. In the end all our labor was in vain. The object of study for many years has perished nor is there hope that the damage can be mended, for our Celsus has departed hence to the skies leaving all the learned regretful.

II. ANATOME PRACTICA, EX MORBO DEFUNCTIS, PRO SEDE AFFECTA INQUIRENDA.

I dedicated a good many years to this very useful work in which I composed the whole anatomy not in the usual manner of other dissectors, who in the past have exhausted themselves in this arena, from healthy bodies, but from those dead of disease, and in such manner that the abnormal constitution of the individual part, whatever the disease, might be noted from autopsy alone. For example, from cadavers in which death was produced by this or that disease, I described the color, shape, connection, site, etc., of the individual organs in dropsy, phthisis, apoplexy, fever and other things, from personal inspection of public as well as private dissections of those dead from disease, as well as in public infirmaries formerly visited by me during long journeys. To advance my design I examined all the books of the ancient as well as modern physicians which we call *practici*, institutions, observations, letters, histories,

consultations, anatomies, cases and wherever else I found the morbid cadaver disclosed. Also for this purpose I read the annals of various peoples in which were mentioned the disembowelling of princes for their preservation. I would have dared to promise thereby great importance for the recognition of affected sites and for the treatment of diseases if I had been permitted to bring this discussion of anatomy to a conclusion. Many favored this subject but none had hitherto undertaken it, nor does it belong to one man or one age. Dissectors in schools and in hospitals must be asked to give attention to this useful anatomy from which more profit will redound to the commonwealth of medicine than from other dissections of the healthy, often curious but not beneficial, or from the rest of the books of the empirics who by various but doubtful signs make conjectures as to the internal sites of disease. Nature gave me a talent foreign to ostentation, but in this subject I would have gained fame in trifles if the ill-will of Vulcan had not intervened.

III. ANTIQUITATES PUERPERII VARIARUM GENTIUM, IMPRIMIS ROMANORUM

Unless my judgment is in error, a work filled with diverse learning, of which I made the first sketch more than thirty years ago, and that upon the persuasion of the famous Wale, who advised me that the subject was desirable. Indeed, Meursius, the celebrated translator of Greek literature, once published three leaves concerning childbirth among the Greeks, but he was unable to satisfy the inquisitive reader with such brevity. I made many digressions on the basis of assiduous reading of ancient authors, observations of other philologists and whatever the Hebrew doctors, the judicious Greeks and assiduous Romans were able to contribute in illustration of the institutions, customs, rites and antiquities of this subject. I carefully selected and reduced all these to order, considering the times of birth

with pleasing and diffuse variety, namely, what was done before birth, what in childbirth and what afterwards. The book was adorned with various inscriptions of the ancients in full size, and throughout were illustrations of Rome, Naples, Gaeta and Florence, collected by me with great zeal in Sicily from the rude records of learned men. When first I returned to my native land I entrusted the synopsis or table of contents to the press. Nor did I thereafter cease adding to the work from my personal reading or whatever learned men judged to pertain to it, so that if the fates had conceded a truce for a limited time I should have been able soon to fulfill my pledge to the public. Now the foetus, suffering in delivery and extinguished in its own childbirth, will never solicit the hostile Lucina, either in cephalic or podalic version. For it has gone there whence nothing returns.

IV. ANATOME PAGANA

It presented the religious beliefs or scruples and rites from the ancient monuments and from the theology of the pagans regarding the individual parts of the body of the ancients.

V. EPISTOLARUM MEDICINALIUM CENTURIAE TRES

I had prepared this for the press, everything necessary had been attended to, and Haubold, from whose publishing house the first four hundred which are available to the public had been issued long ago, made ready for the edition. I am greatly distressed that the letters of good friends concerning a variety of medical and natural matters, as well as my replies offering many observations were destroyed. May readers believe me without oath that the replies sought by erudite friends did not perish through my fault or forgetfulness. Although I am by no means unaware that occasionally there was an exchange of letters with those whom public opinion either had condemned or has held suspect

(it does not concern me whether rightly or wrongly), yet may everyone know that it was always my intent that chapter ii of Seneca's *De tranquillitate animi* should be observed: never be ashamed of a good thing in a bad author. Also I was prepared for the decrease of my reputation, especially through the increasing authority of greater, to test the pens of men famous for whatsoever erudition or experience and to search out the slightest places if thereby secrets could be elicited for human perception and health. If in this way I have sinned, may it be imputed to a zeal for aiding mankind to which I have hitherto consecrated myself.

VI. LIBER DE MORBIS LYMPHATICIS

In order to display publicly the use of the newly discovered lymphatic vessels, I ran through the series of all the diseases which result from disorder of the lymph, harmful through deficiency, abundance, corruption or in some other way, either contained within their vessels or vesicles, or poured out into an alien place. From the desire of many I realized that what I proposed was not displeasing to the erudite, especially when I approved and proposed many remedies for the vitiated lymph in accordance with their opinions. Thereafter the flame, opposed to the lymph, stayed the work in mid-course, so that I am compelled to hand this torch on to others of more flourishing years or who have the strength and opportunity for experiments. Experimentation requires vigorous faculties and full strength which I realize daily that I lack, so that I am compelled to yield not so much to fortune and opportunity as to age. I am therefore confident that I shall easily gain permission from the learned world to relinquish this promised work which it desired, and if perchance some may read the title of this book in the Frankfurt catalogues, let them know that the work had been promised to the

public because of the desire of our Paulli, and that I had made a friendly agreement for its publication as soon as it should be completed. But lest the reader be deprived of this observation, I add among my final remarks that there was a noble matron in whose uterus, opened after her death, were discovered cohering globules filled with a shining, gelatinous lymph, particles of which were yielded moderately even before [the uterus] became swollen.

VII. MEDICINA DANICA INQUILINIS REMEDIIS PROPRIOS MORBOS SANANS

It is a pleasure to concern myself with our common people rather than the learned, although I may seem to be entering into the bad graces of the pharmacists. Furthermore, I have believed that I am more obligated to the public good of the nation than to the financial advantage of merchants growing rich from foreign commodities sought from afar. God granted domestic remedies for the treatment of domestic disorders which anyone far removed from the shops of the pharmacists may employ, as well as he who does not have physicians whom he may consult or the pouch of the pilgrim's remedies. An occasion arose on my farm for writing and testing so that I might assist neighboring friends, the destitute or domestics seeking aid from me. They do not always have the opportunity of calmly going to the city and to the shops, and I have considered it beyond the dignity of physicians and the honor of domestic nature to seek in distant parts and at great expense for remedies which are to be found everywhere at our feet at home and without cost. So recently while I was dwelling on my farm two girls were brought to me defiled by malignant little sores on the jaws, accompanied by creeping gangrene and threatening unsightliness to the whole face. Immediately I stayed the progress of the malignancy solely with sea water in which absinthe had been boiled, and delivered them

from deformity. By means of this same easily acquired remedy I restrained a threatening gangrene in the foot of a man. When another displayed to me a paralysis of the left side, I ordered that acquivit, which our people employ in place of brandy, with extract of the herb of paralysis abounding in our woods, be applied to his spine. I cured the commonly occurring pleurisies solely with a decoction of barley when the patients were averse to venesection. I happily restored not a few bed-ridden scorbutics by means of our aquatic trefoil decocted in that old beer which we preserve in our cellars for its singular fragrance. I purged dropsies with the more tender leaves of the elder tree in place of the leaves of senna, and everywhere I substituted the domestic for the foreign remedy. I omit innumerable other treatments, nor do I recall now what the occasion was which set me to thinking of popular medicine.

VIII. BIBLIOTHECA ANATOMICA

I had briefly compiled whatever writings, discoveries, lives and portraits of dissectors, ancient as well as recent, I could obtain.

IX. OBSERVATIONES DE UNICORNU AUCTAE

This book formerly published by me at Padua had increased by many observations, and now with the addition of some illustrations it was standing in readiness to advance again into the public view; I had promised our booksellers a license for printing it on the first available occasion.

X. DE PYGMAEIS ANALECTA

I had augmented throughout this little work of my revered parent Master Caspar Bartholin senior by these slight bits read and observed by me.

XI. APOLOGIA PRO PHARMACOPOEA DANORUM

Written in defense of our physicians against the possi-

bility of any who might seek to gain notoriety by attacking our Danish medicine with virulent tongue or pen.

XII. DE GLOSSOPETRIS MELITENSIBUS DISSERTATIO

This dissertation was born to me when formerly I visited the island of Melita, when I collected fossil shark's teeth of all shapes and sizes which the inhabitants of that place brought to me, and I myself searched here and there for every sort for the completion of the study. However, distracted by other studies, I was unable to complete what I had begun, but I indicated the substance of this dissertation in the *Historiae Anatomicae*.

XIII. DE MORBIS FUNGOSIS OPUSCULUM

The occasion for writing arose through a fungous which had been cut away from the foot of a certain Neapolitan, and which Marco Aurelio Severino, in whose home I was living because of our common studies, treated in a superior and judicious fashion. In the catalogue of books published by me in Palermo in 1644, and into which the illustrious Venetian senator Jo. Franciscus Lauretanus introduced his lives of the philosophers, I announced a hope of this little book and of others which the times did not permit to be completed, for there is many a slip 'twixt cup and lip.

XIV. ANTIQUITATES HOMINI MEDICO NECESSARIAE

They are so many that they cannot be treated properly in a brief little book. Without a knowledge of antiquities a physician ought not be considered even slightly erudite. Among the eminent there is agreement on this matter, regarding the baths, exercises and other related things of the ancients. The light has been carried forward by Mercurialis, Cagnatus, Reinesius and others whom I follow, although with unsteady pace; yet I am certain that I could not have been reproached for want of eloquence in this

kind of studies, either in this little book or in my notes to Celsus, if the fates had granted that they be saved from the flames. Our revered Rode in his Scribonius and his dissertation on the sewing thread, on the pin of the ancients, and on weights displayed himself as a man skilled in ancient medicine.

XV. INSTRUMENTA MEDICA

I represented the shapes, uses and descriptions of all the medical instruments which the industry of either ancient or modern physicians has discovered.

XVI. MISCELLANEA MEDICA

Equally useful and pleasant things.

XVII. ARCANORUM MEDICORUM VOLUMEN

A thesaurus collected by me on the basis of experiments and the private use of remedies, which recommended itself to mortals.

XVIII. DE ANIMALIBUS IN NORVEGIA

Formerly Master Petrus Claudius Undalinus, patriot and author of a vernacular history of Norway, had prepared in the vernacular tongue a description of Norwegian terrestrial and aquatic animals and birds, which was published by our great doctor Ole Worm; but that conscientious man shaped its parts rudely. When the bruised pages of Undalinus were yielded to me by the filial heir Master Willum Worm, I examined the accounts of the individual animals very carefully, reduced them to order, augmented and illustrated the work and decided to employ the learned tongue.

XIX. NOTULAE HIPPOCRATICAE IN APHORISMOS HIPPOCRATIS

From the mind of Hippocrates himself we best gain the sense of the Aphorisms.

XX. NOTES & EMENDATIONS IN CAELIUM AURELIANUM

The books *De morbis acutis et chronicis* of this methodic author, requiring a medical hand were read by me carefully because, as it seemed to me, they contain many obscure and doubtful things or controversial opinions on which I tried the powers of my ability and illustrated them with many emendations.

XXI. STRABUS GALLUA NOTULIS & VARIIS LECTIIONIBUS ILLUSTRATUS

The very pleasant little garden of this medical poet acquired no small light and brilliance from a manuscript codex written on parchment in a delicate character, of which among other books I deplore the ashes. The manuscripts which I had brought to my estate as a selected library for my use were consecrated to Vulcan.

XXII. JO. RHODII DE PONDERIBUS & MENSURIS CELSI COMMENTARIUS

That commentary which was in confusion I arranged according to my judgment so that it was sewed to the edition of Celsus as a kind of distinguished hem to a regal toga.

XXIII. JO. RHODII NOTAE & EMENDATIONES IN VEGETIUM DE MULOMEDICINA

Very brief notes but an infinite number of variant readings. Also I undertook a lexicon arranged in the manner of Rode.

XXIV. SIMONIS PAULLI ORSERVATIONES CROCODILI

Two crocodiles not long ago sent to Copenhagen to the revered Frederick III, most august King of Denmark, were dissected by the dexterous hand and technique of that praiseworthy Paulli. Distracted by other affairs, he entrusted to me as a friend those observations which he had made with illustrations, so that when I should have leisure

I might publish them augmented by my observations for the inquiring world. But previously accustomed to the waters of the Nile they have now learned to bear fire.

XXV. JACOBI HOLSTE DE FEBRIBUS COMMENTARIUS

I grieve that the learned commentary of that erudite man has perished, which he sent, dedicated to me, that I might offer it to our press. The title of the book is common, but it contains nothing commonplace. From new principles he deduced the causes and symptoms of fever arisen from nervous juice and *flammulae cordis*, to which he called attention in his *Protropum*. I added a preface in praise of the book and its author.

XXVI. PANEGYRICAE ORATIONES MEMORIAE DIVI FRIDERICI TERTII REGIS DANIAE SACRAE, BY MY SONS CASPAR, CHRISTOPHER AND THOMAS BARTHOLIN.

In the chapel of Hagedstedgaard my sons adorned the merits of our revered king with fluent and graceful address, so that he who surpassed the praises and honor of the greatest was praised even by the least. Indeed, it is desirable to take some steps forward even if it is impossible to go still further, and the devoted spirit of my sons, which by itself nothing, acquired honor from that one whom they praised by their orations, and by their dutiful allegiance they demonstrated that they had satisfied whatever was to be hoped of them, which hitherto could scarcely be granted to the orations of those of the highest rank.

XXVII.

It mattered little that my Anatomy is numbered among the things lost. I had revised it for the fourth time in accordance with the observations of recent writers as well as my own on the circulation of the blood and the lymphatic vessels, and had recently sent it to the very celebrated master

Gerard Blaes, Professor of Medicine at Amsterdam so that it might be illustrated with new illustrations and printed by Haake in the Netherlands. It sought to avert the threatening danger by flight, and to protect itself in a safer place in friendly hands, nor did I doubt that having taken wing it would shortly be flying about the whole earth. Would that its fate had been such. I know it lies beyond the cast of the dart, because it defends itself by sea nymphs and clear waters, and secure in the Martian waters of the Dutch it is not exposed to harm from Vulcan. True, indeed, is the opinion of Publius the Stoic: "Whatever at all can happen, can happen to anything."

Books are not so readily exposed to destruction if they have multiplied themselves by the aid of type so that they may be read in more than a thousand copies dispersed throughout the earth, unless this universe which we inhabit be subjected to common ruin or flames spread themselves to all corners of the earth. It is by the benefit of this divine art that I am as yet able to collect or seek again from friends or from booksellers my other works which were previously published. If judgment in this matter had been left in the hands of Vulcan, I should be bereft even of this small portion of my books. Unless it is burdensome to the reader, I shall subjoin a catalogue of my personal library constructed from works hitherto published in my name or dedicated to me, which Vulcan consumed with the rest, but with less harm to me since they are available elsewhere.

1. *Anatomia*, of my parent Casp. Bartholin, with new observations and illustrations added by me. Leyden, Hack, 1641. in 8.

2. The same anatomy in the German language, edited by Simon Paulli. Copenhagen, Moltken, 1648. in 8.

3. *Anatomia*, revised a second time. Leyden, Hack, 1645. in 8.

4. The same anatomy in the French language, edited by Abraham Prataeus. Paris, Oliv. Varennes, 1646. in 4.
5. The same anatomy in Italian verses, translated by Hostilius Contalgenus. Florence, 1651. in 12.
6. Anatomia, third revision to conform to the circulation of the blood, with new illustrations. Leyden, Hack, 1651. in 8.
7. The same anatomy. The Hague, Adr. Vlacq, 1655. in 8.
8. The same anatomy. The Hague, 1660, with an appendix on the lymphatics. in 8.
9. The same anatomy. Leyden & Rotterdam, Hack, 1669. in 8.
10. The same anatomy in the Dutch language, translated and edited by Thomas Staffart. Leyden, Hack, 1653. in 8.
11. The same anatomy in Dutch. The Hague, Vlacq, 1658. in 8.
12. The same anatomy with the notes of Th. Staffart. Leyden, Hack, 1669.
13. Anatomica Aneurysmatis dissecti historia. With the epistle and argument of the distinguished Master van Horne. Palermo, Alfonso de Isola, 1644. in 8.
14. De Unicornu Observationes Novae. Padua, Giulio Crivelliani, 1645. in 8.
15. De Monstris in Natura & Medicina. Basel, Georg Decker, 1645. in 8.
16. De Angina Puerorum Campaniae Siciliaeque Epidemica Exercitationes, cum Cl. Viri Renati Moraei de Laryngotomia Epistola. Paris, Oliv. de Varennes, 1646. in 8.
17. Commentarius in Severini Paedanchona. Naples, Robertus Mollius, 1663. in 8.
18. De Latere Christi aperto Dissertatio. Leyden, Jo. Maire, 1646. in 8.

19. *Antiquitatum Veteris Puerperii Synopsis.* Copenhagen, M. Martzan, 1646. in 8.

20. *De Luce Animalium Libri III. admirandis historiis, rationibusque novis referti.* Leyden, Hack, 1647. in 8.

21. *De Luce Hominum & Brutorum Libri III. Editio secunda auctior & emendatior.* Copenhagen, Haubold, 1669. in 8.

22. *De Armillis Veterum, praesertim Danorum Schedion.* Copenhagen, M. Martzan, 1648. in 8.

23. *Anatomicae Vindiciae Cl.V. Casp. Hofmanno, aliisque oppositae.* Copenhagen, M. Martzan, 1648. in 4.

24. *Animadversiones in Anatomica Hofmanni.* Copenhagen, Martzan, 1648. in 4.

25. *De Variis Reipublicae Christianae Morbis, & placidis illorum remediis Dissertatio Oratoria.* Copenhagen, M. Martzan, 1649. in 4.

26. *Collegium Anatomicum Disputationibus 18. adornatum.* Copenhagen, various publishers, 1651. in 4.

27. *De Cruce Christi Hypomnemata IV. 1. De Sedili medio. 2. De Vino Myrrhato. 3. De Corona Spinea. 4. De Sudore Sanguineo.* Copenhagen, M. Martzan, 1651. in 8.

28. *The same Hypomnemata.* Amsterdam, Andr. Frisius, 1670. in 12.

29. *De Lacteis Thoracicis in Homine brutisque observatis Historia Anatomica.* Copenhagen, M. Martzan, 1652. in 4.

30. *The same.* Paris, Mat. du Puis, 1654. in 8.

31. *The same.* Genoa, Ben. Guaschi, 1654. in 8.

32. *The same.* Leyden, Wiingard, 1654. in 12.

33. *The same.* London, Oct. Pulleyn, 1652. in 12.

34. *The same.* Utrecht, Achersd, 1654. in 12.

35. *The same.* Heidelberg, Wiingard, 1659. in 8.

36. *De Lacteis Thoracicis Dubia Anatomica, & An Hepatis funus immutet medendi methodum.* Copenhagen, M. Martzan, 1653. in 4.

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38. *Vasa Lymphatica in Homine inventa.* Copenhagen, M. Martzan, 1654. in 4.

39. *Defensio Vasorum Lactorum & Lymphaticorum adversus Jo. Riolanum.* Copenhagen, M. Martzan, 1655. in 4.

40. *Examen Lactearum contra Riolanum & Harvejum.* Copenhagen, Melchior Martzan, 1655. in 4.

41. *Spicilegium Primum ex Vasis Lymphaticis, ubi Clarissimi Viri Glissonii & Pecqueti sententiae expenduntur.* Copenhagen, P. Morsing, 1657. in 4.

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44. *Paralytici Novi Testamenti Medico & Philologico Commentario illustrati.* Copenhagen, M. Martzan, 1653. in 4.

45. *Paralytici, the same, edende Georg. Segero.* Basel, L. König, 1662. in 8.

46. *Oratio in Obitum D. Olai Wormii.* Copenhagen, M. Martzan, 1655. in 4.

47. *Oratio in Obitum D. Henrici Fuioren.* Copenhagen, Morsing's widow, 1659. in 4.

48. *Dispensatorium Hafniense.* Copenhagen, G. Lamprecht, 1658. in 4.

49. *Historiarum Anatomicarum Rariorum Centuria Prima & Secunda.* Copenhagen, P. Haubold, 1654. in 8.

50. *Historiarum Anatomicarum Centuria I & II.* The Hague, 1654. in 8.
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56. *Panegyricus Augustissimo Regi Daniae Friderico III. Primo Regnorum Haeredi*, publice Academiae nomine coram Rege dictus. Copenhagen, Gødian, 1660. in fol.
57. *De Nivis Usu Medico Observationes Variae.* Accessit de Figura Nivis Dissertatio Erasmi Bartholini ad Th. Bartholinum. Copenhagen, P. Haubold, 1660. in 8.
58. *Disputationes Variae Medicae Hafnienses.* Copenhagen. in 4.
59. *Cista Medica Hafniensis*, variis Consultationibus, Casibus, Vitisque Medicorum, Hafniensium repleta. Copenhagen, Haubold, 1661. in 8.
60. *Domus Anatomicae Hafniensis Descriptio.* Copenhagen, Gødian, 1662. in 8.
61. *Responsio ad Novas Observationes Bilsianas contra Nic. Lassium.* Copenhagen, Haubold, 1661. in 8.
62. The same *Responsio*, translated into Dutch by Jo. Blasius J.D. Amsterdam, Montanus, 1661. in 8.
63. *Castigatio Epistolae maledicae Biltii*, ubi Bilsianae artes deteguntur & Professoria dignitas vindicatur. Copenhagen, Veridicus, 1661. in 8.
64. *Responsio & Castigatio contra Bilsium.* Amsterdam, Montanus, 1661. in 12.

65. De Hepate Defuncto Dissertatio, novis Bilsianorum Experimentis opposita. Copenhagen, Wering, 1661. in 8.

66. De Pulmonum Substantia & Motu diatribe. Copenhagen, Gödian, 1663. in 8.

67. De Insolitis Partus Humani Viis Dissertatio Nova. Copenhagen, Haubold, 1664. in 4.

68. De Cometa Consilium Medicum, cum Monstrorum nuper in Dania natorum Historia. Copenhagen, Haubold, 1665. in 8.

69. De Medicina Danorum domestica Dissertationes X. cum Vindiciis & Additamentis. Copenhagen, Haubold, 1665. in 8.

70. De Hepatis Exautorati Desperata Causa cum praecipuis Eruditae Europae Medicis Concertatio. Copenhagen, Dan. Paulli. 1666. in 8.

71. Epistolarum Medicinalium Centuria I & II. Copenhagen, Haubold, 1663. in 8.

72. Epistolarum Medicinalium Centuria III. Historiis Medicis aliisq; ad rem Medicam spectantibus plena. Copenhagen, Haubold, 1667. in 8.

73. Epistolarum Medicinalium Centuria IV. Variis Observationibus curiosis & utilibus referta. Copenhagen, Haubold, 1667. in 8.

74. Orationum Medicarum Volumen. Copenhagen, Dan. Paulli. 1668. in 8.

75. De Cygni Anatome & Cantu, Bewerlini Disseratio, Notis auctior ex Schedis meis, edente filio Casparo Bartholino. Copenhagen, same publisher, 1668. in 8.

76. Carminum Libri VIII. Copenhagen, Dan. Paulli, 1669. in 8.

77. De Medicis Poetis Dissertatio. Copenhagen, Dan. Paulli, 1669. in 8.

78. Opuscula Anatomica de Vasis Lacteis & Lymphaticis Uno Volumine comprehensa, aucta & recognita. Copenhagen & Frankfurt, Dan. Paulli, 1670. in 8.

79. *De Cerebri Usu Medico & Artificio oculos restituendi Epistolae.* Copenhagen, Dan. Paulli, 1669. in 4.

80. *De Simplicibus Medicamentis inquilinis cognoscendis Epistolica Dissertatio.* Frankfurt, Dan. Paulli, 1669. in 8.

81. *De Flagrorum Usu Medico, cum Henr. Meibomii ejusdem argumenti Epistola ad Th. Bartholinum.* Frankfurt, Dan. Paulli, 1670. in 8.

82. *Oratio in Obitum Johannis Mullenii, ubi de Antiqua Danorum Moneta.* Copenhagen, Godicchen, 1669. in 4.

83. *Anatomes Augustae Figurae aeri incisae Imperfectum opus.*

84. *Operum Catalogus.* Copenhagen, 1661. in 8. The same rendered into verse by Christophorus Friis of Erfurt. Copenhagen, 1663. in 8.

85. *Operum editorum Catalogus nona editione auctor.* Copenhagen, 1667. in 4.

86. *Epistolae varii argumenti in Operibus Deusingii, Sachsii, Majoris, Hobokenii, &c.*

87. *De Pleuritide Paradoxa Endoxa.* Basel, 1645. in 4.

88. *Elenchus Operum M. Aur. Severini editus a Th. Bartholino.* Naples, 1643. in 4.

89. *Joh. Walaei Epistolae duae de Motu Chyli & Sanguinis ad Th. Bartholinum.* Leyden, 1641, 1645, 1651, and published elsewhere at least ten times.

90. *De Aureo Cornu Olai Wormii, Eruditorum judicia edita a Th. Bartholino.* Padua, 1645. in 8.

91. *De Hyssopo in cruce Christi Cl. Salmasii Epistolae Tres ad Th. Bartholinum, cum Praefatione ejusdem Th. Bartholini.* Leyden, 1646. in 8.

92. *Observationes Anatomicae Pawii posthumae ex Musaeo Th. Bartholini.* Copenhagen, 1656. in 8.

93. *Joh. Rhodii Mantissa Anatomica ad Th. Bartholinum.* Copenhagen, 1660. in 8.

94. Cornari Vita Sobria ad Usus vulgares accommodata, cum Praef. Th. Bartholini. Copenhagen, 1657. in 12.

95. Observationes Jo. Veslingi & Epistolae Anat. & Med. posthumae cum Praefat. Th. Bartholini. Copenhagen, 1664. in 8.

96. Meditationes Bonae linguae vernaculae ab Elis. Tottia, cum Praef. Th. Bartholini. Copenhagen, 1664. in 12.

97. Observationes Medicae Variorum, ex Musaeo Th. Bartholini. Copenhagen, 1665. in 8.

98. Mich. Lyseri Culter Anatomicus cum duplici Praefatione Th. Bartholini. Copenhagen, Haubold, 1665. in 8.

99. Alberti Bartholini De Scriptis Danorum liber posthumus, cum Praef. Th. Bartholini. Copenhagen, Haubold, 1666. in 8.

100. Jacobi Holste de Flammula Cordis Epistola, cum Praefatione Th. Bartholini de eadem Flammula. Copenhagen, Dan. Paulli, 1667. in 8.

101. Lisseti Benancii Fraudum & Errorum a Pharmacopoeis commissorum ex Gallico Declaratio ex Musaeo Th. Bartholini. Frankfurt, 1667. in 8.

102. Dialogus de Fraudibus Pharmacopoeorum nonnullorum Joh. Ant. Lodetti, ex Italico Latina lingua donatus & editus ex Musaeo Th. Bartholini. Frankfurt, 1667. in 8.

103. Gesneri de Lunariis, ex Musaeo Th. Bartholini. Copenhagen, Haubold, 1669. in 8.

104. Olhafii & Wormii de Usu Renum, cum Praefatione Th. Bartholini. Frankfurt, 1670. in 8.

105. Marcelli Malpighi Epist. Anat. de Pulmonum Substantia, cum Praefatione Th. Bartholini. Copenhagen, Haubold, 1663. in 8.

106. Cygni Anatome, Ejusque Cantus Joh. Jacobi Bewerlini Praesid. Th. Bartholino. Copenhagen, 1650. in 4.

107. *Controversiarum Medicarum Decas* Wilhelmi Wormii Praeside Th. Bartholino Proposita. Copenhagen, 1653. in 4.

108. *De Usu Partium Communium Corporis Humani Integumentorum Dissertationes duae* Georgii Segeri, Praeside Th. Bartholino, Proposita. Copenhagen, 1656. in 4.

109. *De Usu Thoracis Dissertatio Anatomica* Wilh. Oderi Dantiscanti, Praeside Th. Bartholino publicae disquisitioni subjecta. Copenhagen, 1657. in 4.

110. *De Gutta seu Morbo Articulari Disputatio Inauguralis* Caspari Kolichen Silesii, Praeside Th. Bartholino publice proposita. Copenhagen, 1664. in 4.

111. *La Sferza Poetica de Saprício Sapríci* al Tomaso Bartholini. Venice, 1643. in 12.

112. *Caecilii Folii Auris Internae Delineatio*, ad Th. Bartholinum. Venice, 1645. in 4.

113. *Nihusius de Cruce Christi* ad Th. Bartholinum. Cologne, 1647. in 8.

114. *Riolani Animadversiones* ad Th. Bartholini Anatomem Reformatam, Historiam Lactorum & Lymphaticorum &c. Paris, 1653. in 8.

115. *Messis Aurea Triennalis Hemsterhusii* ad Th. Bartholinum. Leyden, 1654. in 12.

116. The same *Messis*, to the same. Heidelberg, 1659. in 8.

117. *Insidiae structae Vasis Lymphaticis* Th. Bartholini detectae a Mart. Bogdano. Frankfurt, 1654. in 4.

118. *Olaei Rudbechii contra* Th. Bartholinum *de Ductibus Hepaticis Aquosis, & Vasis Glandularum Serosis*. Leyden, 1654. in 8.

119. *Apologia pro* Th. Bartholini *Vasis Lymphaticis* Mart. Bogdani, cum Praefatione Th. Bartholini. Copenhagen, 1654. in 12.

120. *De Lympha Bartholiniana* Georgi Segeri, cum Praef. Th. Bartholini. Copenhagen, 1655.

121. Of the same, *De Quidditate & Materia Lymphae Bartholinianae, cum Epistolis*. Copenhagen, 1658. in 4.

122. *Triumphus Cordis duce Th. Bartholino erectus per Georgium Segerum*. Copenhagen, 1654. in 4.

123. *Louys de Bils Brief aen Th. Bartholinum*. Rotterdam, 1661. in 8.

124. *Ludovici de Bils Epistolae duae ad Th. Bartholinum*. Rotterdam, 1661. in 4.

125. *Antonii Deusingii Hepatis Resurrectio ad Th. Bartholinum*. Groningen, 1661. in 12.

126. Of the same, *Responsio ad Th. Bartholinum*. Groningen, 1662. in 12.

127. *A. Deusingii Responsio de Casu Mulieris ossa foetus excernentis, ad Th. Bartholinum*. Groningen, 1664. in 12.

128. *Jo. Pecqueti Dissertatio Anatomica de Lacteis Thoracicis ad Th. Bartholinum*. Paris, 1657. in 4.

129. *Ph. Jacob. Sachs a Lewenheim, de Analogo motu Aquarum ex & ad Oceanum, ad Th. Bartholinum*. Breslau, 1664. in 8.

I shall not speak of many other things, although there are many, lest I try the patience of the readers by too much display or irritate the recently inflicted wound. The best remedy is to forget my grief and to give humble thanks to God. As once three men sentenced to a fiery Babylonian furnace were protected against the fury of the flames, not by the symbols with which the beginnings of our Christian religion were protected, but solely by divine virtue and the presence of an angel, so I was preserved intact from the raging fire by the most cherished and unshaken assurance. Let my brain-children be sacrificed to preserve those of the flesh, and praise, honor and glory forever to God our preserver. Furthermore, our great devotion to our most merciful king Christian V, who aided me and mine, snatched from the flames, by many and great benefits; indeed, greater

than those of Nebuchadnezzar to Shadrach, Meshach and Abednego for whom, when they had safely escaped from the fiery furnace as a proof of divine aid, he provided splendid public offices and large revenues in the province of Babylon.

Thus I see that I have not lost since God desired me and mine to remain unharmed and our most august king fosters the survivors with his mercy and encourages them to recover what was lost. Hence I am able to boast with Julius Firmicus Maternus, *De Errore Profanarum Religionum*, bk. 1: Troy was burned by the Greeks, Rome by the Gauls, but the temple of Minerva survived both fires. Yet the survival was not owing to our efforts but to the watchfulness of God and the protection of the king. The blessed Frederick III by his presence was able to assuage those burned out. Christian V, as I am well aware, solaces by his mercy and restores by his munificence whatever the flames destroyed.

Fire is in the charge of Vulcan and its material is said to be under his control. Nevertheless Arnobius, *Adversus Gentes*, bk. 9, rightly asks why the sacred temples, and the principal ones of cities (I add libraries), so frequently collapse into ashes under the voracity of flames? We believe that under the protection of God, under the rule of King Christian, we are safe from flames. Although Vulcan lamed in one foot on the island of Lemnos attempted to lame both our feet in Denmark, yet we shall spring up more joyfully than ever on both feet if our Jupiter, the immortal God, favors us, if the son of Jupiter, our very merciful king protects us and, in accordance with the magnitude of his royal mind, orders the world to understand how great is his kindly support of letters. Thus in the Danish kingdom Christian, not Vulcan, rules, and the former achieves more with his scepter than the latter with his hammer.

On Medical Travel

THOMAS BARTHOLIN
On
MEDICAL TRAVEL
To his Nephew
HOLGER JACOBSEN
and his Sons
CASPAR BARTHOLIN
CHRISTOPHER BARTHOLIN
COPENHAGEN

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IF THE FLOW OF MY WORDS were to match the depth of my affection, it would be utterly impossible to express with any brevity those prayers with which I shall follow you departing from your home, and that emotion with which I bid farewell to those so dear to me, such pledges of love and such worthy sons and citizens. Although I have drawn up some suggestions which may help to make your travels more successful, so that you may achieve your goal and be of service to God and your country, yet I cannot tell you how bitterly I shall suffer our physical—but not spiritual—separation. Nor am I able to describe fully in words how your excellent and indulgent mothers sigh as they embrace you, contemplating your absence, what tears threaten your friends, and with what good wishes all will follow you, as if a matter of state were under consideration rather than the plans of private individuals travelling for their own pleasure.

Thus we see that nothing of value can be possessed forever. Our children, the sweetest pledges of the marriage bed and the *παῖδες* of physicians, once fostered and nourished by us but now desirous of travel, are attracted to foreign parts and so are separated from their parents. Such is the reciprocal commerce of the learned world among friendly peoples. We give our sons and we receive theirs from abroad. We teach some and we learn from others. We demonstrate to the world by example and the world is an example for us. Why, then, do we lament the loss of our sons? Why when they are about to see and to learn noteworthy things, should we draw them back by our contrary desires? They depart that they may return, and they journey abroad that they may dwell with us. They were not born for us but for their native land and for the world, for, said Democritus, the whole world is the native land of a powerful mind.

I consider it our greatest happiness and joy that they

have so lived at home that they may leave their parents and friends longing for them, and with assurance rather than doubt that they will be of advantage to the public. However, I shall be silent about other things that might be said in praise of my nephew and my sons lest I appear to be seized by paternal affection rather than by the truth. It is enough that their preparation is such that they are deserving of the friendship and favor of the learned solely on the basis of their youthful but talented achievements at home, the result not of indulgent flattery but of genuine effort and remarkable excellence. They have given examples and specimens of their studies which were of the highest quality, and consequently they are not fearful of the world at large. Nor should they be considered strangers in the world since they have travelled abroad in The Netherlands and Norway and begun to soar with the common quill.

You, my sons, for no few years have listened to great teachers in the university of your native and learned city, and because of its recognized eminence you ought to have acquired the precepts and judgments of medicine, philosophy and mathematics, the one increasing your fund of knowledge, the other your body of examples. Nevertheless, as I once believed that travellers ought to make use of their ears, so I feel that now you ought to do likewise in order to live up to public expectations. Hence I recommend the same to you as was once recommended to me. Do not hesitate to make it part of your plan to do as I did and, before me, each of those very wise men who believed he ought to travel so that he might either gain more fruitful knowledge or be able to teach better. Thus strengthen your mind by the examples and judgments of others, and care for your body so that it will not become indisposed but remain healthy during your travels; accustom yourselves to the frugality of a morsel, as Stobaeus reports Democritus to

have said, and let a cushion of herbs be the sweetest reward of your hunger and exertion. Indeed, Galen, in his book, *De Icteri Cura*, recommends travel and horseback riding for those suffering from bodily weakness.

You may learn from the examples of ancient wise men how much carefully planned journeys contribute to our understanding of the thought and knowledge of the sages. Apollonius of Tyana travelled to India so that he might become familiar with the Brahmins who, on the witness of Philostratus, inferred a pure region above the four elements; in Rome, too, he conferred on various grave matters with Telesinus the consul, while in Egypt he conversed with Vespasian, talked with the Gymnosophists, and was an inquisitive investigator of the origin of the Nile. Anacharsis of Scythia, equally excellent of character, travelled to Athens where he entered into a brief friendship with Solon, and he informed Croesus that he had come into Greece to learn the customs, laws and manner of life, not to acquire wealth; and that it was enough if he might return to his native land better and more learned.

Today there are many travellers; indeed, it seems as if the whole of Europe is on the move. Everywhere soldiers lay waste neighboring borders, and seizing the riches of provinces and cities, they return to their native lands, bloody-handed, wounded in the breast, but with wounds of conscience. They applaud themselves when they consider the wealth in their treasure chest, but they are devotees of frightfulness because of the innocent souls whom they have compelled to travel. Not thus Anacharsis, nor the Queen of the East who, guilty solely of the desire for knowledge and without other hope of profit, journeyed to hear the wise Solomon. Pythagoras of Samos, famed for his knowledge, acquired a large part of the mysteries of the barbarians and Greeks. Travelling to Persia to gain knowledge of the magi, he learned from them the motion of the

heavens, the course of the stars, their power and special influence. In Egypt he acquired the knowledge and language of the people, their three kinds of letters, epistolary, hieroglyphic and symbolic, and he gained an exact understanding of the gods. Then sailing to Crete, with Epimenides he beheld the cave of Idea, and in Arabia and India he learned the method of interpreting dreams and divining the future. Today not a few travel, superficially resembling Pythagoras but in reality with a different spirit and goal. They learn foreign languages so that they may make use of them for the ruin and scorn of others, and having a thorough knowledge of God, they know more than they believe, and they believe badly what they know. They shape dreams for themselves, predict many things for others and nothing for themselves, and their admirers believe that they are travelling properly if they traverse those different foreign lands donkey-borne on a set tour.

Plato undertook his travels differently and provided an example for others. He walked to Megara to hear Euclid. With some young disciples of Socrates he went to Cyrene to hear the mathematician Theodorus, and then sought Italy to learn from the Pythagoreans Philolaus and Eurytus. Accompanied by Euripides he greeted Egypt to talk with the priests. That is to say, all travels ought to have a goal so that we may extract the sweetest things from those regions and acquire from the teachings of the sages those customs and matters which will increase the body of useful knowledge. Such was the first concern of the grandsons of Aesculapius, for all the earth does not bear all things, nor did nature place the same diseases and remedies of diseases in one place. Hippocrates, Father of Physicians, demands in his book *The Law* that the name of complete physician be acquired in that place naturally suited to his training, he who also left his native land so that he might readily examine a variety of patients. Elsewhere, in his book *On the*

Physician, he desired that the physician follow the barbarian militia to gain understanding of military surgery. Indeed, Aelian, *Tactics*, ch. 2, declares the physician to be among the necessities for war.

Foreign diseases disturb one's native land by their behavior, wherefore medicines for such foreign diseases ought to be observed in their native region. So it was that the Spanish carried the use of guaiac from America to our continent for treatment of lues venerea; and if French, Italian or Spanish physicians wish to treat scurvy at home, of necessity they are forced to travel to our shores where we are happy to give them hospitality. Thus hand washes hand. We learn their diseases and they ours, so that we may all heal properly. It is said that Hippocrates, seeking to discover the site of bile, visited Democritus who received him as a guest rather than a student, and that he had left his native land not because he had burned the library of the Guidii, as false rumor had it, but that he might investigate and develop many aspects of his art. This was also the practice of other physicians. Galen left Pergamum and heard Pelops at Smyrna, Numesianus at Corinth, and then demonstrated his skill at Rome which he thrice visited. He set out for Judea not to observe the miracles of Christ, which Labbeus, *De Vita Galeni*, denies, but to investigate the opsobalsam and the bitumen of Judea, and he sailed to the island of Lemnos to see for himself those things which had been said of that land. In Cyprus he investigated the mines, calamine, pompholyx and other things. Nor in passing by did he fail to greet Alexandria of which, such was the fame of its school, that Ammianus Marcellinus, bk. 22 declares that whatever the experience of a physician, his authority was sufficiently recommended if he could say that he had been trained in Alexandria.

Agapius, a professor of the Alexandrian Academy, who later went to Byzantium and opened a notable literary

school, is celebrated in Suidas. Because of this change of location the physicians were called *περιοδευταί* that is, those who travel about, a respectable name among the ancients but less respectable to us. In bk. 6, par. 1 ff., bk. 27, *De Excusationibus Tutor*, by Modestinus, the physicians are so called and linked with the grammarians, sophists and rhetoricians, to whom was granted exemption from guard duty. The ancients interpreted this as patrols, not because they were *ἀγοραῖοι*, who today sell their secrets in theatres and market places, but because they were the companions of princes on journeys. They were called visitors by the retinue of the princes, either because they went around the city to render it healthy or to communicate their skill to many. In the church of the early Christians the vicars of the bishops were also called by the respectable word *περιοδευταί*, patrols or visitors, who visited and went about those regions subject to the states but lacking their own see, which is remarked in the Council of Laodicia, canon 161. Chr. Justellus illustrates this from Balsamon, Zonara and others.

In our age such great usefulness redounds to the physician from his travels that no one puts much faith in the authority of a physician who has not set foot outside his native land, and although each may have at home in abundance those things which are necessary for medical instruction, nevertheless they ought to be strengthened or increased by a comparison with things abroad. There is vast delight and pleasure in gazing upon foreign lands and fields, mountains and rivers, observing the benignity of nature's variety everywhere, the different conditions of the sick in homes and in hospitals with their great number of beds, which can readily be seen here and there, examining the methods for treating the patients, enjoying the conversation of the learned men and calling forth their experiences, and

visiting the laboratories, the furnaces of the chemists, the pharmacies and unguent shops.

I believe everyone is aware how important travel is for learning or for completing one's study of anatomy. Galen, *De Administrandis Anatomicis*, bk. 1, ch. 2, believed that the student of anatomy ought to attempt to visit Alexandria if only for the purpose of seeing the skeleton which the physicians exhibited to the spectators to whom they taught the bones. And, if occupied by other affairs, one cannot, as he proposed, visit Alexandria, it is possible, in that other way which he also employed, to study the bones of men in various tombs and decayed monuments and to revisit those theatres which here and there in our learned world have been enlivened by anatomists yielding no ground to the celebrity of the Alexandrians.

In the memory of our fathers Spain produced and nurtured Valverde; Sicily, Ingrassia, Naples, Jасolino. Students of the art have looked to Bologna for Carpi, Mondino and Varolio; to Padua for Vesalius, Fallopio, Acquapendente and Casserio; to Rome for Colombo, Piccolomini and Eustachio; to Basel for Plater and Bauhin; to Paris for Jacques Dubois, Charles Estienne and Paré; to Montpellier for Du Laurens; to Wittenberg for Salamon Alberti; to Leyden for Pauw. In our age we see the most famous anatomists flourishing in the more cultivated kingdoms of Europe, enticing foreign students to themselves, known to us partly through friendship, partly by their renown: at Naples Severino; at Messina Pietro Castelli; at Rome Trullos and Panarola; at Pisa Ruschus and Fracassati; at Florence Redi and Tilemann; at Bologna Malpighi and Bellini; at Venice Folli; at Padua Spigelius, Plazzoni, Vesling, Marchetti, Molinetti, Wirsung and Leonicerio; at Milan Aselli; at Basel Bauhin the younger; at Paris Riolan the younger and Pecquet; in England Harvey, Glisson, Willis, Highmore and Lower; at Leyden Otto van Heurne, Valkenburg,

De Wale, Franciscus Sylvius and Horne; at Amsterdam Tulp, Blaes, Ruysch, Swammerdam, Kerckring and Slade; at Delft Regnier de Graaf; at Groningen Eissonius; at Utrecht Diemerbroek and Hoboken; at Bar-le-Duc Bils; at Strasburg Sebizius; at Altdorf Moritz Hofmann; at Helmstadt Meibom; at Jena Rolfink and Slegel; at Leipzig Welsch and Chioni the elder; in Sweden Rudbeck and Howenius; in Denmark Simon Paulli, Møinichen, Borch and Stensen; goodness, how many names which are well able to compete with all antiquity.

Whithersoever the son of the art arrives he will find among those notable anatomists, or their happy successors, that which will satisfy his avidity for knowledge. Furthermore, in the more celebrated cities the hospitals will provide him with much practical anatomy, offering through the use of diseased cadavers an easy introduction to knowledge of the affected regions and the causes of diseases, and I shall never cease to commend this to all. Here and there on the route there are musea of natural history which have some relationship to these matters, especially those which exhibit the skeletons of adults and children, surgical instruments, exotic animals, foreign fruits, an elegant variety of seeds, metals, minerals and stones, and other things of medical interest to the foreigner. In one or another the anatomical pilgrim will be able to gather information which may seem to his purpose and for the good of medicine.

Neither in our age nor any former one will you readily find an eminent anatomist who has placed domestic ease before the rigors of travel, although it must be warned that the goal sought will not always be a happy one. Zerbi, barbarous in diction but not in knowledge, was wickedly slain in Thrace, a tragedy of which Neander gives an account in his *Syntagma de Medicinae Originibus*. Vesalius was compelled to go to Jerusalem not for expiation of a crime, but, according to De Thou, *Historia Galliae*,

bk. 74, because he sought the cause of a disease in a cadaver of which the heart was still beating. Carpi was driven into exile by the Bolognese not because he dissected live men, since he abominated the crime in his *Commentaria in Anatomia Mundini*, but because he seemed to have done so by reason of his numerous dissections; or, just as Riolan was suspected because of his freedom of speech in anatomy and his obscene discourse by which he offended virtuous ears. When the works of Spigelius of Padua were published by Bucretius of Breslau, the latter escaped the rigors of the inquisition of Bologna by changing his professed religion, and then in Paris he donned the cowl of the Dominicans, he who had compared the os sacrum and the muscle of the scapula to the cowl of the monks. Wirsung was dropped on the threshold of his own house in Padua by a stray cannonball, the death of Spigelius was hastened by a sliver of glass driven into his finger, and the hand of a dissected cadaver cast terror into Slegel.

Hence almost everywhere anatomists have been victims of misfortune, and if some have been able to avoid these snares they have been debilitated by the stench of the cadavers so that few can hope to reach a venerable age, if you except Democritus the centenarian, Acquapendente the nonagenarian, Riolan the octogenarian and our Simon Paulli and Rolfinck more than septuagenarians. Finally, if spared, they complete the journey and grow old at home with Galen, with no reward except wearied and bloody hands, and those empty. Few are able to go to Corinth so that like Acquapendente, Vesling and Folli they may boast of their golden necklace. Whatever the case may be, consistent worthiness is a greater joy than swollen prestige. The art itself, moreover, ought to be sought for the sake of the art, and ignoring all difficulties and blessed with whatever our talent, we must proceed whither we are ordered by the fates which rarely accept dictation. Everywhere the cave

of Democritus is open. To quote Pliny, bk. 6, epistle 29, sometimes it is proper to plead the cause of glory and fame, that is, one's own; and we place these goals to travel, to look to the health of the sick and to give consideration to one's own reputation.

If we give thought honestly to our reasons for travelling, we seek both ends, although tempered by the needs of other things occurring on the journey. On the one hand, if, after mature consideration, we depart from home knowing what to seek, and having gained it return; on the other, if we leave nothing untouched whence fruit may be gained, contemning nothing yet exaggerating nothing; indeed, it displays ignorance to admire the common, ordinary things at home in place of the unseen abroad, but it will be prudent to despise nothing. Let us gird ourselves for the medical journey with caution lest we be wearied by attempting energetically to see everything from which there appears to be the smallest usefulness.

Let us remember also to maintain fastidiously the decorum of a courteous guest. Whatever one's knowledge let him not rise above others in arrogant haughtiness, arouse envy against himself or be ashamed to learn many things. Obnoxious by whatever faults to his reluctant master, let him, like Polemon the companion of the philosopher Xenocrates, return to his purpose and gain reformation of character through the wisdom of the sages. Since the mind travels between the good and the bad, but does not dwell between them, let him seize examples of good things and close his eyes to others. Let him consider all good things as his and abominate the bad as alien. Let him approach ready to learn but deaf and dumb to the faults of others. Let him see many things but criticize few. Let him venerate the sacred Eleusinium from a distance. Let him avoid rumors. Let him judge and think well of all, revenge wrongs by forgetting them and chastise by silence. Let him

seek friends, indeed a great many, but let him beware to have a single enemy. In this way, if everything pleases you, you will please everyone. In short, if you serve all, harm none and judge the unknown modestly, you may rejoice in having escaped those dangers which frequently threaten travellers who are overly inquisitive, and you will gain esteem for civility and courteous conversation.

While the variety of things to be learned and to be seen in travelling is so great that they cannot be recounted in a few lines, nevertheless they can be comprised in two categories of importance: things and men. The latter ought to be preferred since, like Plato's bees, by implanting honey on the lips of the learners they are guides to lasting happiness. The former ought to be grasped with neither a too sparing nor a too avid hand, for too much curiosity about very insignificant things does not leave time for the more important, while a sparing use of required nourishment arouses but does not satiate the appetite. This method ought to be observed everywhere.

Not all the learned ought to be approached, nor all that is being taught listened to. There is a golden axiom of Cardan, *De Arcana Prudentiae Civilis*, ch. 127, 19, do not advance so far in things of no use that you cannot withdraw. Let medical knowledge especially be drunk with delight. First, those things ought to be learned which look to the purpose of medicine, the health of the ailing and matters of truth. Disregard the rubbish with which polyhistorians exhaust themselves, since, as Galen warns, he who contends solely over names or words could be put to shame by a jackdaw or crow; and although physicians may learn this or that pleasant thing as adornment, yet in the brief and restricted life to which fate limits us, such matters are often obstacles to those hurrying on to things of necessity, even though physicians who wish to be uncommonly learned complain of a lack of their own kind. We see that the poly-

historians have shrunk from the prescribed medical pattern just as Claudius Nero, when he had to sign the customary death penalty of a certain person, preferred to be illiterate. On the other hand, we see that some mediocre in learning but bold and experienced in treatment have triumphed over those of greater learning so that material success has blessed the one while the others are scarcely able to keep in salt.

Frequently on the journey it will turn out that those things which give trouble to the student of medicine end by advancing him very swiftly toward his goal. The slower the trip through obscurity the more swiftly we hasten to the goal by shortcuts. Although a variety of erudition adorns and delights the physician, it does not readily enrich or perfect him more swiftly. Therefore, as Democritus said to the stoic, among superfluities there are many things which must not be considered privately or publicly, but not only many but innumerable necessary things must be considered both privately and publicly.

Possibly my own case may assist others. Avid to learn, I travelled for ten years enthusiastically undertaking not only very long trips to farthest Melita—not Thule—but also because of my wide interest I spent many hours designed for necessary studies to the Hebrew, Aramaic and Coptic languages, to lectures on law, to the delights of the poets, to studies of the critics, to Platonic subtleties and to the curiosities of antiquity. I have forgotten a large part of all those things, but I do not regret that I undertook such a burden of no lucrative value. Whatever it may be, in addition to medical science, in which we seek pleasure in order to live happily, let us pursue it with diligence and care; and since a pure physician is commonly called a pure ass, one can devote those occasional hours which others spend in games, unseemly love-making, drinking parties, gambling and adornment to the pleasant studies of philology and

antiquity by which the physician can render himself agreeable and cultivated.

We must gather those things which serve to enrich the medical storehouse from all sides, so that like Argonauts we may bring back the golden fleece from our journey. Everything which occurs attracts the eye of the physician: the air of different regions, the nature of the lands, the salubrity of the waters, the influence of the sky, the temper of the inhabitants, the arrangement of diet, the diseases, the domestic and foreign remedies, and the rest of nature's gifts such as the plants, animals, medicinal waters, juices, medicinal earths, metals and other things of particular regions. From the physicians we learn the method of treatment peculiar to each place, the types of diseases and epidemics, the singular experiments and rare observations; from the surgeons, venesection, cupping, leeching and cautery; from the pharmacists, their medicinal compounds or those of the physicians; from the chemists, the method of fashioning mercury, potable gold and philosophers' stone; from the common people, common things; from kitchen-gardens, useful things; from all, something since rarely do we enter hospitals without learning the use of a domestic remedy or the account of a rare disease; even the secrets of the gypsies by which they frequently make a fucus or satisfy the demands of the common people. Nothing ought to be neglected. The ears ought always be open, for just as in such case Tertullian, 1, *Ad Martyres*, remarked that not only the magistrates and their prefects, but also idiots and worthless persons could encourage the most competent gladiators from afar, so suggestions offered by the people are often of value.

Although matters which deserve attention are to be found occurring in two ways, yet various advances of the art are to be observed in certain places, just as in the stars in their orbits; here the fundamentals may very readily be

imbibed, there the practice of medicine flourishes, elsewhere there is a very full development of materia medica, the culture of Flora flourishes, works of pharmacy are excited, the fumes of chemicals are aroused, natural experiments are carried on, anatomical demonstrations are held, surgical operations are numerous; elsewhere the conclusions of the ancient physicians are discussed either by the followers of Hippocrates, the supporters of Galen or the disciples of the Arabs. The travelling physician must apply himself to these things individually, seeking out the merchandise in its own market, so that he emerges perfected by the erudition and experience of many.

To speak more clearly and without enigma, the principles of the art are taught both at home in our native land and in the neighboring Low Countries; medical training and anatomical dissection flourish in Paris and Padua, and botany is exalted at Montpellier and in Montauban; Germany teaches pharmacy and chemistry, experiments are made in London, Florence &c. Paris and Italy stand forth in dexterity of the surgical art. The Parisians and Romans search the oracles of Hippocrates, the Paduans follow in the footsteps of Galen, and those of Montpellier boast themselves as the heirs of Arab doctrine carried to them by the disciples of Avicenna and Averroes who flourished for many centuries in the Academy of Cordoba through the diligence of the Moors. The Germans, followers of all sects, even join the medicine of Paracelsus to the rest in a friendly union. However, the British, fortunate in the fruitfulness of talented men and the essential supply of subsidies, exert themselves strenuously in new things wholly founded on experiments.

It would take too long to narrate each thing which the world offers today, worthy the observation of the physician. In a general way Galen, in his book *Quod Optimus Medicus sit Philosophus*, noted those things which he ought person-

ally to observe in cities and regions, namely, the site, standing and running waters, hot, nitrous, aluminous and whatever kinds there be. Approaching closer to the matter, Joannes Stephanus Strobelberger of France attempted something of this sort for France in his *Descriptiones Galliae Politicae Medicae*, discoursing on the qualities of the French kingdom, its academies, cities, rivers, the medicinal waters and plants to be found in France. So far as I know no one has provided a description of that sort for the rest of the medical world, which would be of great assistance to the travelling physician. In his *Methodus Peregrinandi*, Zwinger discusses in general terms things more useful to the teacher than to the journeying physician, and had he in some way or other been willing to complete his great work he would have deeply indebted students of medicine who would have been able to learn what ought to be observed in travel just as they may read what ought to be studied. I once considered writing a kind of medical itinerary, but put it aside when fortune interposed other duties.

However, on this occasion of writing to my nephew and my sons I shall find it a pleasure to recall certain things formerly observed by me on my journey to Italy and Sicily, so that if God and fortune should lead thither those very dear to me, they may become acquainted with my friends and observe many things neglected or not seen by me in my hasty passage. I shall give no introductory account of Italy or of other travellers there, the usual beginning, and I must confess that I did not remain for long in some parts of Italy but hastened through the Campania, Calabria and Sicily, where, however, I remained longer than was usual for the sake of observing nature and studying medicine. I shall recount as much as I can recall of that pleasant memory.

On leaving Rome through Tiburtine territory, I came upon Bagni di Tivoli of ancient fame, once sacred to

Aesculapius and Hygiea, and celebrated for the cure of many diseases. The ancients considered it sulphurous, wherefore Martial, bk. I, ep. 13, "White Albula smokes with sulphurous vapors." Here and there Galen mentions these waters, but in *Methodus Medendi*, bk. 8, ch. 2, and elsewhere, he calls them aluminous. However, Andrea Bacci, *De Thermibus*, discovered by distillation that it was not nitrous but a mixture of alum with salt particles, because alum is not found without salt, and, as Pliny notes, nitre does not occur in Italy with any true sulphur; some add iron in which the Roman territory is rich. Many more things are to be observed in this territory which have been mentioned by others.

At Monte Circello, the seat of the Duke of Caetani, the ash tree grows in abundance. Workers cut the trunks of the trees from the upper part downward with a small curved knife, and then after exactly three weeks they collect the manna which drips down from the incision like glutinous water. It hardens in the sun and finally is removed with little wooden knives in the months of August and September and sold at a high price. Indeed, a pound of it costs three Julii, and under the name of "sforzata" it was widely used in Rome in place of the Calabrian. However, if the tree drips as the result of rain, the manna flows down. I collected and preserved some of it there and noted that it differs little from the Calabrian manna.

We crossed Suessa in the mountains, the country of Agostino Nifo, the great philosopher, where from a special earth distinguished by golden speckles are made those vessels which I brought home for the museum. Here, too, grows the best and finest flax which was called "caltanum" by the ancients.

Naples attracts everyone's attention by reason of its size and magnificent structures. It long delighted me for the sake of its nature and medicine, as well as the friendship

of Marco Aurelio Severino, my host. I followed my own interests, leaving other things to the others, and I consulted the most famous physicians of that time. Their leader was Mario Schipiani, protomedicus of the kingdom, venerable in years and very learned in all aspects of medicine. Since he had been a friend of my father, it was required that I attend upon him. He spent a large fortune on the public college which he had founded, and he was the compounder of an electuary of betony, rosaceous honey and soluble gold described in the *Antidotarium* of Donzelli. Antonio Santorello, primary professor of the theory of medicine in the University of Naples, but second in dignity to Schipiani, was known to the learned world through his various writings of antipraxis and postpraxis, of the nature of treatment and about Vesuvius. Giovanni Domenico Malicocchi had just then published three volumes drawn from various works but comprising the whole of medicine. Donato Antonio Stella, P.P., published many things and brought together a museum collection; among his writings were some on medical physiognomy, commentaries on the *Aphorisms*, and other learned things. Nicolo Angelo Elisao, professor of the practice of medicine, disposed more to doctrine than to ostentation, showed the value of experience in the treatment of fevers, and by a description of the eruption of Vesuvius his great erudition. Paolo Emilio once in France, then happily practiced medicine at home, especially with his polychrest water. Onofrio Ricci P.P. phil. sought fame over the question of sympathy and antipathy and by other works. I shall say nothing of Marco Aurelio Severino, known throughout the world by his writings and his helping hand; he aided me greatly by his daily conversation. Finally, mention must be made of Giuseppe Donzelli, excellent chemist and botanist, whose *Antidotarium Neapolitanum*, *Dissertationes de Balsamo Orientali*, and *de Calchanto* have been praised by the learned. Such were the

medical luminaries who advanced me in Naples. I shall make no mention of other things which neither helped nor hindered me. I regret to say that Giulio Jasolino, my father's friend, had died before my arrival, yet I often thought of him in the church of Santa Clara where his epitaph may be observed. Of magnificent workmanship, the epitaph was composed by P. Urso as he himself remarks in his *Liber de Neapoli*.

There were 120 pharmacists, not counting the infinite shops of the monasteries, and 500 barbers. The well-furnished museum of rarities of Ferrante Imperati, chief of pharmacists, may be seen today, and there is extant a letter of Aldrovandi to Imperati in which the museum is compared to a table of riches of which the crumbs would suffice for adorning the museum of Ulysses. Imperati's son Francesco has given an account of the museum, now possessed by the grandson, while the great-grandson, with a knowledge beyond his years, exhibits it to foreigners. Nevertheless Francesco was not the author of that work but Colantonio Stelliola, whom he mentions in the preface, the preceptor of Schipiani, Severino, &c.

There were very few rarities there which I had not seen elsewhere. I gave considerable study to a small skeleton of a pigmy, of scarcely a palm's length, which I believe was factitious, and a very rare eagle's stone the size of a head; ten volumes of pressed herbs glued in by the hand of Imperati deserved admiration because they had escaped the ravages of time. There was a fish with horns on its back, bezoar horn and stones, infinite minerals and metals, the head of a lamia, cotton and cloth made from it, Syrian silk of inferior production, purpura, innumerable examples of meteors, two-headed vipers, and, among other rarities which then pleased me, a two-headed foetus. In another museum formed by F. Donato Eremita, once pharmacist to the monastery of Santa Caterina, there were various things

such as unusual ovens and skeletons of various animals. He was responsible for the publication of *Liber de Arte Pharmaceutica* and *de Elixire Vitae*, but Pietro Castellani, who lived with him, is believed to have been the real author of them. The same Donato also published an elegant description, with an illustration, of the passion flower.

The Hospital of the Blessed Mary of the Annunciation was magnificent and splendid. All cases of fever were cared for on the lower floor and wounds on the upper, and there was a pleasant open space on the roof where those were admitted who were convalescent so that they might refresh themselves and become accustomed to the air. In the lowest part of the building to the right was a special room to receive the moribund and the noisy, and the Reverend Fathers lived adjacent to it. On the bed of each fever patient was affixed a stone tablet on which was noted daily when and how frequently he had received his medicine.

The Hospital of the Incurables, also very large, had two surgeons in ordinary, as many assistants, two physicians and a third for women. The assistants were selected after examination by the more learned physicians and surgeons in the presence of the superintendent.

The library of San Giovanni a Carbonara, also for the physicians, contained many manuscripts. It had a Dioscorides ornamented with elegant illustrations, but for some strange reason all the plants had been placed in an alphabetical order. It also contained the *Aphorisms* of Hippocrates with the commentaries of Galen, written in Latin in 1380, as well as works of Mesue, Columella, and Cato *De Re Rustica*; also two manuscripts of Solinus, Pliny and others had been discovered.

In a palazzo near San Biagio de' Librai, among other antique statues was a colossal bronze head of extraordinary workmanship and size affixed to a wall, the head of a horse once in the episcopal stable. Sick horses were said to run

around it and be immediately cured, perhaps by aid of their movement.

Severino gave the Neapolitan method of treatment in his *Therapeuta Neapolitano*, published in Naples by Gregorio Villani in 1653, but since this has been described by others mentioned above, I shall not presently concern myself with it. A disease which raged there frequently and, because of the exclusion of the sun by the height of the buildings and the local diet of beef and cabbage with bacon, was almost endemic, was "leaping roseola." Malignant paedanchone, or the suffocating angina of children, an epidemic disease since 1618, attacked the children like a plague, infecting some and killing others. The older were rarely attacked and easily treated because they were more willing to take medicines and gargles. Elisao deduced this plague from the fatal appearance of a comet, *De Vesuvio*, ch. 9. Despite the frequency of erysipelas the physicians were not disposed to treat it but left it to nature. They cured many other diseases by a decoction of sarsaparilla, but some medicines were employed in larger doses than elsewhere because of the drier bodies of the inhabitants, and it was the practice of the whole kingdom that if a purgative produced no effect in two hours, chicken broth without salt was prescribed. They advised venesection in any pain of the head, yet admitted grudgingly that external heat dissipates the spirits. There were many sanguifuges which were placed in a vessel of hot water in which the patient sat, whence I have often seen anal fistulas cured in the Hospital of the Incurables. Schipiani first introduced vesicatories and douches to Naples.

Oil of roses was used for all wounds at whatever period, a practice opposed by Severino in his *Restituta Chirurgia*. In cases of chest wounds the external wound was enlarged, the interior left untouched, but it does not seem to me that the external ought to be dilated, lest cold air penetrate

and the spirits issue more readily from the open passage. However, the interior channel needs to be more ample for the exit of pus unless they put their trust in the kindly air. Indeed, the air was very salubrious; it blew from the neighboring sea, and also the Appenines provided a passage for it from the east. It was further cleansed and improved by the very hot and sulphurous earth. It was said that the warmer the summer the more healthful it was, because it always gave rise to a pleasant breeze, and it was believed the Roman air would have had dire results in Naples because of the vapors produced there unless there were a north wind or heavy rains. Quercetanus, *Diaeteticon*, is of the opinion that the air of Naples is subtle and that of Rome thicker and that any change to the contrary would be dangerous because the air of Rome penetrates the pores already open. Hence Schipiani persuaded me that it would be wise to avoid motion and exposure to the sun, and that in the morning I ought to drink lemon juice and indulge sparingly in food and drink.

There is a great difference in the wine of Sorrento which is drunk today in Naples, even by those with fever, from that which was used in Galen's time. The former is short-lived, very thin and neither hot nor astringent. That of Galen had contrary qualities and, furthermore, is said to have been potable in its twentieth year, *De Antidotis*, bk. 5, ch. 3. The reason for this change was not one of location but a change in the inhabitants who becoming more eager for gain pulled out the old vines from which profits were slow, and substituted the new vines of Sorrento which produce copious but watery wine immediately suitable for use. However, the tavern-keepers and tradesmen offer another reason, for according to Antonio Caserta, *De Vinis*, quaestio ix, art. 1, the greatest amount of the asprinian wine-grapes are grown in the Campania and near Naples, and since such grapes are acid they are not so sub-

ject to the depravations of thieves and bear very abundantly. Hence it is that the Greek wines and grapes have been almost extirpated from the region of Atella and replaced with asprinian vines and Greek wine is no longer produced. Such is the result of changing times. The asprinian wines are cooled with snow to make them more pleasing to the palate, and since the wines are sweet, black and thick, they are not adulterated with sugar as is our custom. They are commonly called mangiaguerra and lagrima Galitti, and the thick white are called Greek. Others of a middle quality, such as the chiarello and codocavallo, come from Posilipo.

Once the Neapolitans made cane sugar, but it was discovered that the air had become insalubrious because of the marshy ground which the canes required, and their growth was discontinued. This led to greater interest in nitre which was extracted by the use of mark or dried goat's dung from a white earth outside the gate, where the road to Rome starts. Whenever possible manna was collected from the ash tree, although it was said to have less strength and to be inferior to the Calabrian. There was a story that a certain Calabrian physician had obtained an edict from the King of Spain which prohibited the gathering and sale of Neapolitan manna in that wealthy city as harmful; however, the edict was quietly circumvented. From the sea various kinds of fish were brought into the market by the fisherman, among them polyps, torpedines (which it was said could produce a shock), lupo di mare, columbus marinus and the ray fish, about which see Rondelet, F. Columna Phytobas. It has a long and rough tail with a needle-like central portion which is employed for various uses, and Severino used it to open apostemata. Anatiforous conches and marine ricinus of various colors with movable wings were also to be found in the fish market.

The oxen's cheese had two uses, and the harder and fatter, which is called provola and is rich in butter, was

given for ailments of the chest. That from the city of Sessa, which was said to be the best, was compressed in the form of a bag, and on the Salernitan road I was compelled to stay my hunger with it. The curious advised me that the odor of the dried vulva of the ox so closely resembled musk that it was employed by the Neapolitan ointment dealers in unguents. There the best fig was considered to be that called paradise, which was described as like an impoverished, hanged madman shedding a meretricious tear. Tomatoes were frequently eaten and were very well prepared by the monks, although they give rise to melancholic blood which they resemble in color. Mattioli, *Dioscorides*, bk. 4, ch. 71, describes their preparation in Italy. I shall add nothing further about the economy except that the wine casks were made of cherry wood by both rustics and city-dwellers, and the wine and water always bore the odor of cherries.

As I have remarked, from time to time I shall call attention to a few things that the travelling physician ought to observe. There were things of great importance in the region of Pozzuoli and the island of Ischia, where the burning sulphur had so heated the earth that you might believe it the home of Vulcan. Whole volumes have been written about the antiquities of those regions, and especially about the baths, notably by Giovanni Francesco Lombardi and Giulio Jasolino, but it would be too lengthy a task to mention each here. The natural mineral field was extensive, and the kingdom was rich in sulphurs which would have appeared even greater if the mountain had been removed and its roots exposed. Hence there were more sulphur baths here for the use of the sick than anywhere else. The following baths of Pozzuoli were famous: Sant'Anastasia, Arco, Arculi, Astruni; the small baths of Bracula, Calatura, Cantarelli, Santa Croce, Culina, Fati, Ferri, Faeniculi, Fontana, Fontis Episcopi, Foris; the grottos of San Georgio, Bibborosi, Juncaria, Santa Lucia, Santa Maria, San Nicolo; the oil baths

of Ortodonico, Polumbario, Pietra, Prato, Pugillo, Raneri; the scrophae of Silviana, Sol & Luna; the grottos of therapeutic sulphurous waters, subcaverns and sudatoria of Bulla, San Germano, Tritulo, Tripergula or Veter Tritulus. In Ischia there were the following baths: Castiglione, Cynthara, Dimidia Viae, Doyani, Fons, Furnello, Gurgitello, Nitroso, Plaga Romanorum; scrophae or rocky grottos, subcaverns and sudatoria of Cocto, Ulmitella.

In short, because the whole region was sulphurous, the waters were warm, the earth smoked and burned, and from that place especially called Solfatara, where the sulphur was actually trod upon, a very large supply was annually carried off by merchants. If we could believe the common account, three kinds of sulphur were mined, a very whitish earth which the Neapolitans used in their fireplaces, a medium, very greenish and shining kind from which oil was extracted, and a yellowish from which it was said no oil was obtained. While this abundance of sulphur conferred many benefits on the sick, it also caused difficulties in the form of frequent earthquakes. The inhabitants were never free from them, and the very extensive city of Naples often trembled. The vine-tenders hid from this misfortune in the grotto of Cocceius Nerva at Posilipo.

Although the produce of the fields of Pozzuoli ripened very swiftly, it likewise spoiled very swiftly, and the strawberries, apricots and cherries were surpassed in sweetness of flavor by those elsewhere. On the island of Aenaria, called Ischia, but once Pitecusa, and Inarime of the poets, in addition to the baths already mentioned, of which Gurgitello is presently very popular, near a place called la Fichera there was a remarkable vapor bath and an extensive tract of very hot mineral sand with baths at the shore and near the sea; there was a sudatorium, and water of good flavor boiling noisily cooked fish and meat in a very short time. At Dojano the large supply of nitre caused the whole shore

to shine, and the remarkable effect of its nitrous water was famous, because flax placed in it was rendered mature, white and finished in the space of three days. It is also written that the inhabitants are long-lived and healthy and that the women excel in beauty as a result of its virtues.

On the cliffs of Ischia toward Pomarium Nimphae, there were vast black ferrous sands which drew iron like a magnet. There was also a gold mine at Campagnano near the chapel of San Sebastiano, and according to Giovanni Elisao the Venetians once mined it. It was in the midst of such a natural bounty, continuing on the other side of the city, that Mount Vesuvius hastened the death of the noble Pliny, and as recently as December 1631 throwing up flames, stones, sulphur &c., it burned, dried up neighboring streams, sprinkled ashes as far as Venice, and immersed the nearby towns. When I passed through the Torra of the Greeks, now Ducis de Medina, between Salerno and Naples, it was almost wholly covered with ashes; nor did Vesuvius then cease to smoke, and I saw the sulphur boiling in the base of the chasm when I climbed the mountain in November 1643. In this last inundation of flames and ashes the region of Tabiano, midway between Sorrento and Naples, was also so corrupted by too much heat and dryness that that which Galen, *Methodus Medendi*, bk. 5, ch. 12, recommended for its moderate dryness, now harms those who have ailments of the chest.

On the road to Salerno there were numerous springs of sweet water which were called acqua del capello Venere, because the neighboring hills abound in this plant as well as others. Influenced by the antiquity of the place and by the celebrity of the Salernitan doctors, I visited Salerno where I saw the school of medicine near the cathedral church of San Matteo, decorated with ancient peristyles. I discovered that those doctors were now silent and unknown, who once filled the world with their celebrity and dedicated their

medical poems to the King of England. It was said that they were exceedingly jealous, for, if one may trust the accounts, secretly at night they destroyed the celebrated baths of Pozzuoli in which there had been salutary remedies, and thereafter those baths remained desolated and disordered, although presently careful efforts are being made to restore them. However, the Salernitans paid the penalty of their jealousy, for in return they were overwhelmed.

The city is exposed on the west, but the eastern side is girdled by mountains, wherefore it is attacked by lethal fevers in the summer. The candidates of this celebrated school were granted the degree after they had passed an examination on the text of Hippocrates and Aristotle and sworn faith to the profession. By reason of the antiquity of the institution and the reverence in which it was held, its licence permitted practice of the art of medicine not only throughout the whole kingdom of Naples, without consultation with the protomedicus, but also through the whole of the Roman Empire. Although everything necessary for pleasure and need was available in abundance, the Appian apples were especially praised for their odor and flavor, and it was the doctors themselves who declared: All apples are bad except the Appian of Salerno.

In the rest of Calabria—of which the temperateness of the year is such that the bees are said never to cease work, so that the honey is not thick or harsh but fragrant and clear—nature has been generous in the supply of metals, minerals, stones, plants and rivers, which Girolamo Marafioti discussed in the fifth book of his *De Antiquitate Calabriae*, Naples, 1595. I shall touch upon the most notable things I saw in my passage. The manna of Calabria was recommended in the shops of Europe, and I and my travelling companions gathered it from the trees; however, it is troublesome to travellers who eat too much of it since its sweetness produces diarrhoea. It was gathered in the

summer months of June, July and August from the ash tree, and there were two sorts, natural and provoked. The former, the "celestial dew" of the ash, dripping of its own accord provided what was called "manna del corpo," more expensive and heavier than that provoked. The latter trickled down from the ash through the trunk which had been cut round and round with a knife or axe. This, called "provoked," was scraped off with wooden knives and placed in vessels of wood or bone lest its color be harmed; it was lighter or darker according to the heat of the year, and when it had dripped down it was spread out on tables so that the dryness and acidity which impair its sweetness might be removed by the sun. This was done repeatedly. The poorest manna, the valueless sort called bragerola, was run through a sieve by impostors so that it might be reduced to the size of a chickpea and sold for leaf manna. The cicadas puncture the ash to enjoy its sweet juice, and then the liquid drips through the openings, produced by their suction. In Bari, in Apulia, the liquid flowing from the knee of San Nicolo, and called the manna of San Nicolo, was recommended for fevers. The very pious carried it off and sprinkled it on the ground believing that it then returned to the saint's body of its own accord. However, Santorelli, a Neapolitan physician, was of the opinion that this was actually the work of the religious fathers because a similar thing occurred in Naples where the manna had also received a special virtue from its proximity to a holy body.

Sugar cane grows in Calabria around the southern mountains, and so much sugar was refined there that it filled the cargo vessels. There were two salt mounds, from which salt was excavated, near a high mountain. Found to be solid and round and existing there for no explicable reason, garlands of prayers were placed on them, and the inhabitants believed that this was healthier salt than marine

because it did not harm the eyes. They also found that the salt crystals in the mines were very soft but hardened on exposure to the air, so that they were skillfully carved into various shapes in the mines. The more shining parts of the mines were called the eye of the salt because they shone brightly.

In the mountain rocks of Basilicata I found fossil shark's teeth like those of Melita, although of different color, and some shellfish pressed into the stones.

As no one has dared to write an Iliad after Homer, so too of the tarantulas of Apulia about which Kircher has left so many erudite things to posterity. At night in the town and castle of Paulla, twelve sea leagues from Cosenza, I saw an immense number of fireflies which cast a light more yellow than blue, and from here there was an ascent up a little hill to the monastery of San Francesco where San Francesco da Paulla had lived. Here was a clear spring of the same name in which it was said that baked fish had been restored to life, and in testimony of this a dish in which they were cooked and then resuscitated was preserved in the church. The spring was said to be effective against all ailments of the eyes and chest if its water, which was clear and did not taste like others recommended for their therapeutic excellence, were drunk and the face washed in it. Barren women gathered in this monastery so that they might be impregnated through the intercession of the saint, as was said once happened to the wife of the emperor, queen of Spain and France. The lower cubicles were given over to their use, and the sterile women remained in them for three days. What they did during that time I do not know. Small and elegant vessels are made from the earth of this hill similar to terra sigillata.

Upon sailing to Sicily the Ischian group of islands appeared, and among them Stromboli, distinguished in the day by smoke and at night by flames, especially with the

sirocco blowing. We sailed very near so that we might observe it very exactly. Often terrifying thunder storms arise here so that the devil seems to inhabit the place, and there was no safe harbor for ships unless fortified by the sign of the cross, and pumices were expelled from the fiery mountain. Numerous dolphins sported in the sea before our ship driven swiftly on with its sails wholly filled with wind. A few years earlier a part of the earth on Vulcania, one of the islands, swelled up with a great noise. It was seen to rise into a hill from which, finally ruptured, steam burst forth, and cinders and ashes were scattered about destroying almost all the neighboring towns.

After the lighthouse on Sicily had been saluted, we came upon two nearby lakes, celebrated in the ancient religion, one of Saturn where there once was a shrine sacred either to Neptune or to Saturn. Today they are saline and water let into them is evaporated by the sun. These salt waters immediately close up wounds. Near the passage to Messina aloes grow into the size of trees. Scylla and Charybdis of the ancients lie in the narrows of the sea between Calabria and Sicily, about which one should read Strabo, bk. 6, and Justinus, bk. 4, ch. 1. According to Pomponius Mela, bk. 2, ch. 7, Scylla is a rock and Charybdis the sea, each a menace to those ships driven toward them. However, the rock did not appear above the sea and Charybdis clashing its waves together against us in a playful mood, carried us rapidly to Messina in the bay of Pelori. The spring of Zancle, today called Pozzo Leone, is in that splendid city. It was believed to have been the spring of a nymph, wherefore these lines are added in the name of the nymph Zancle: Fleeing the flames of Encelidus through hidden ways, I raise my head here, nymph of the everlasting water. When I realized that a fleet would come to my shores of exile, at once I became nymph of the concealing water.

No streams ran through the city so that porters had to

bring sweet water into each building where it was preserved in large stone urns. Here was once the seat of the giants, granted them by their parent Saturn. Their bones were dug up in an elevated place which, as a favor to the Capuchins, Prince Philibert had ordered leveled, and the bones were broken up and scattered.

The university was famous for the four disciplines of theology, law, medicine and philosophy. Three professors taught medicine. The first chair in the practice of medicine was held by Pisani, successor to Giovanni Batista Cortese; the second, that of theory, by the Roman Pietro Castelli. The first chair in philosophy was vacant, and I recall that it was offered to me with an excellent salary; the second chair was held by Placidio Regna, a learned man praised publicly by many illustrious men; Giovanni Domenico Prosimi of Martorano had the third. There were few writers on medicine, the most illustrious of them being my friend Pietro Castelli whose various published works, especially in anatomy, pharmacy and botany, were continually discussed by the erudite. Pisani published his *Antidotarium Messenense*, 1644, full of barbarisms and said by Castelli to have been compiled from a pharmacopoea. Giovanni Comencio Prosimi, J. Med., Ph.D., published a dissertation *De Abscessu Puerorum Suffocativo*, Messina, 1643. I saw the *Anatomia ex Galeno, Hippocrate, Avicenna*, written as a vernacular poem by Andrea Trimarchi and published in 1644, as well as the *Apologia contra Licetum de Abortu* of Antonio Bliverio.

Pietro Castelli had recently established the garden of Messina in the city's moat, with a chemical shop, anatomical theatre and chapel. He also published a single book on the plants of the garden, Messina, 1640. There was a large hospital, constructed from seven small habitations of the Capuchin fathers near the university, in which the physician Pisani treated ailing women and foreigners.

It has been fifty years since any theriac has been dispensed there, and it must be sought in Venice, Rome, Naples and Alexandria. In my day Giovanni Domenico Cardullo, at the sign of St. George, compounded it for Pietro Castelli of the university who published a description of it; according to the same Castelli the best samples were imported from Sicily and Calabria. There was much sesame oil, for which almond oil was substituted in Rome, and so great was its abundance that it was sprinkled on black bread for its very pleasing flavor. Red Sicilian valerian was used in the garden of Castelli, and since *ronpiquartana* *Messaneium* grew copiously here and there on the pathways, it was employed in salad.

Among the common diseases afflicting the inhabitants was flatus of the hypochondria, which Castelli happily dissipated with his electuary diatartar, of which he employed one ounce an hour before meals with a resultant large expurgation, and he prescribed it on alternate days for those suffering from lues venerea. Since this very useful electuary of Castelli has reached the notice of the poor and is suitable even for our country, I shall not hesitate to repeat its description, published in Messina, 1644, by his nephew Giovanni Pietro Corvino. Take $\frac{1}{2}$ ounce each of very finely ground and sifted tartar of white wine and choice senna, 1 ounce each of choice manna and brown sugar, 1 drachm each of ginger, anise, cinnamon and galanga minor, 5 ounces of syrup of roses; mix, and the electuary is made. Four ounces of meat juice ought to be drunk afterward so that it will work more readily. All the shops of Messina sold this electuary at a reasonable price, and in the whole of Sicily and nearby Calabria the diatartar of Castelli was so highly praised that it was preferred to all other cathartics. However, because a one-ounce dose aroused nausea in the more delicate, at the request of an illustrious noble of Messina, Castelli prepared it in the form of a julep which

was more pleasing to the palate. Take 6 ounces of choice senna, 3 drachms each of ginger and galanga minor, 3 pounds of infusion of roses; mix, pour into a closed glass vessel and place in a slightly warm place or in a Mary's bath for 24 hours; then boil, strain and clarify and add 8 ounces of white sugar and $\frac{1}{2}$ ounce of cream of tartar; boil, clarify and finally add 1 ounce of cinnamon water distilled from wine, $\frac{1}{2}$ scruple of oil of anise, mix and the julep is made. A small dose is $\frac{1}{2}$ ounce, a large, 1 ounce, but because it is a very safe medicament it is often used without harm in doses up to $1\frac{1}{2}$ to 2 ounces, moving the bowel gently five or six times within two to three hours after food.

The suffocating angina of children, which was frequent here, also attacked the parents if they associated with their children. Castelli treated this solely with a laxative of rose syrup and honey, for he considered venesection useless.

The mamertine wines were pure and pleasing, especially the aged. Hence Martial, bk. 13, ep. 117, "If you are given an amphora of Mamertine wine of Nestorian age, the name doesn't matter." According to Pliny, bk. 14, ch. 6, they gained renown through the public feasts of Julius Caesar. The Sicilians are very sparing in choice of foods, and delight in warm bread with bacon fat. However, they enjoy the fish which the sea provides. Martial, bk. 13, ep. 80, sings of the murena there which is so fat and large that it is unable to submerge its skin completely which is burned by the sun. There was celebrated fishing in May and June for the sword fish which has much edible flesh and which was pursued and taken like the whale. I received as a gift from Castelli the sword which is attached to its mouth, and also the eye of which the cornea is thick, hard and yellow, with a hard crystal. Another noteworthy fish was the tuna, of the same size and shape but without the terrible sword for which a globular structure substituted on the forehead. Its flesh is harder and redder. I collected some bones on

the Sicilian coast near Cape Passaro. In September a third fish, called the bauri, is caught.

In the cathedral church of the Blessed Mary there is a column of Sicilian granite near the altar to which is attached a vessel of holy water with this inscription:

ΑΣΚΛΗΠΙΩ

ΚΑΙ ΥΓΕΙΑ

ΣΩΤΗΡΣΙΝ

ΠΟΛΙΟΥΧΟΙΣ

On the rear: ΑΙΑΙΩ ΑΔΡΙΑΝΩ

ΑΝΤΩΝΕΙΝΩΙ

ΣΕΒΑΣΤΩ ΕΥΕΒΕΙ

Π Π

G. Gualther translates this in *Antiquae Siciliae Tabulis* as:

To Aesculapius

To Aelius Hadrianus

and Hygiae

Antoninus

tutelary guardians

Augustus Pius

of the city

Father of his country

Since I spoke of the Museo Castelli in my *Epistolae Medicinales*, I shall not now repeat my description of the various phenomena of nature which were displayed to me. On the land route to Catania one sees great quantities of white mulberries, but the black, which are more commonly eaten by the silk-worms in Sicily, are even more abundant. Then we reached the city of Taormina, but whether or not it is the Tauromjanum of Pomponius Mela I hesitate to say. A mountain of red sand or sandstone of reddish color hangs over it, so we turned off the rocky and impassable road to a sugar mill situated near the sea. There were numbers of instruments, presses and furnaces in it, and although I described for the distinguished Wale, *Epistolae Medicinales*, cent. 1, ep. 54, how the Sicilians of this place pressed out and refined sugar, I should like to repeat it here for the sake of those travellers who do not have my book at hand.

In June and July the juice was pressed from canes selected in the earlier months. This was the method. First, the canes were cut into small pieces, placed in a powerful press and the extracted juice fell into vessels below. The millstone was moved by flowing water. For the second pressing the remnants of cane were placed in pervious sacks. The raw juice was put into large furnaces, heated by a very extensive hearth, and cooked four times. Then it was poured into forms called bells, constructed in the shape of bells with a hole cut out of the upper part, and these were put aside for four months in a small room, or some other enclosed space, so that the sugar might harden gradually. A thicker juice, called molasses, dripped out through the hole and fell into a surrounding vessel, and from this was made a sugar of little value. The rest was purified by a longer passage of time.

Sugar from this area was very dark and coarse, a fault of the land and of the canes, and that which was made in the city of Laqueduce, between Messina and Palermo, was preferred, but the Messinians used that which was exported from Palermo for dainties.

From here I went to the fields of the recently planted sugar cane which the inhabitants called "honey cane." The roots, survivals of the former cutting from which new buds called cochili sprout, were planted in February. First placed in a dry place they were then moved to a more moist, and finally, when ripened, were cut as far as the roots. The canes were transplanted every three years, since the new shoots issue from the same root in three years. The lower part of the cane served for making sugar, the upper for the new planting.

Before entering Catania one must cross a river called the Freddo because of its coldness; it was so intensely cold in the summer that it was scarcely possible to keep from gasping in its water. I tasted it and discovered a sweet and cold

flavor rivalling that of milk. This river rises in the snows running off Mount Aetna.

Catania, situated at the base of that mountain, appeared to us to be of greater antiquity than its various things of medical interest. However, the fields of Catania were fertile in many plants fostered by the heat of Aetna or by the generally sulphurous soil. Thermae, of which vestiges remain today, were once numerous here, and on a certain column of the church of Saint Agatha one may read an inscription concerning these thermae.

I devoted cent. 1, epist. 52 of my *Epistolae Medicinales* to a catalogue of the plants originating around Aetna. The pharmacists of Catania compounded the juice of licorice into pastilles and exported them as a theriac, and in the hot season when I made the difficult ascent through rocks and ashes to the centre of Aetna, I saw tanacetum vulgare luteum flourishing at the summit. There was snow on the summit of the mountain which carried down to Melita sold for a higher price than wine; however, it diminished during the season of the greatest heat. It was said that Aetna blazes when the sirocco blows, but returning from Syracuse on a stormy night I saw its flames. However, Aetna always gives off smoke. The last eruption of 1635 displayed a variety of spectacles with a torrent of sulphurous liquid sweeping over everything and overwhelming whatever was in its way, trees, rocks and men, and then solidifying it encrusted those things which it had overrun. I took home a piece of that solidified flow for the Museum Wormianum.

To continue, the neighboring region produced abundant sugar, crocus and honey, and nothing was lacking here for loveliness and fertility if only the inhabitants, held by constant fear of the fire-vomiting mountain, were able to live in security. However, Dioscorides, bk. 1, ch. 25, and Pliny, bk. 21, ch. 6, value the Sicilian crocus or Centuripianum less than the others of its kind, but the seeds are com-

mended for their supply of juice and good coloring matter. There is, moreover, a town of Centuripium at the base of Aetna, today called Centorbe, and according to Strabo, bk. 6, Certoripis. The honey of Aetna was celebrated by Apuleius, *Metamorphoses*, bk. 1, but Cluverius declares that it was from Hybla, which was a maritime city between Catania and Syracuse; however, Strabo says that only its name remains because of its greatness. Pietro Carrera, *De Aetna Descriptio*, bk. 1, ch. 1, denies this, because there is a supply of good honey here, and he explains it as not from that Hybla or Megara, between Catania and Syracuse, but from that which has the name of the largest of the three of the same name in Sicily, within the region of Aetna and a little distant from Paterno.

Giovanni Batista Rossi, a professor at Catania whose acquaintance I made when I passed through that city, has given an account of the rare things which ought to be seen in Catania. The excellent Carrera of Mongibello, also my friend, has written much of Aetna, and Girolamo Manna of the Academia Humorista of Rome also introduced Aetna into songs in his *Licander* or Pastoral Tragi-Comedy.

At Syracuse we saw the field where Syracuse once existed, now reduced to the circumstances of a small city. Among the rubble remained a small vaulted room of Dionysius the Tyrant, shaped like a horn through which the secret conversations of the Christian captives in the lower prisons were heard with the sound doubled. Syracusan wine, the once so celebrated Pollaeum, still preserved its reputation and was called muscatel; however, there were not sufficient inhabitants to consume this excellent and flavorful wine, and it was exported throughout the whole kingdom of Sicily and Melita. It was not inferior to that which comes from Agosta. There is a city between Catania and Syracuse where numerous palms were seen. Syracusan

cheese, praised by Athenaeus, has lost its worth, certainly for me.

Along the remainder of the coast of Sicily salt was made in lagoons dug out in the rocks. Once the sea had entered them it was unable to flow back and was dried out by the sun into salt; however, the salt could not be made unless fresh water was also added. The greatest amount of salt was exported from Trapano where black coral was also found, and a well-grown tree of it drawn from the sea was to be seen there, dedicated to the Blessed Virgin because the discoverers could not agree over its division. Here as elsewhere amber was found, and you may find salt mines here and there, but the salt was very bitter to the taste so that the inhabitants did not like it or attempt to refine it since there was abundance of other salt. In the centre of the land there were mines of lapis lazuli which I visited with a friend. Elsewhere a white, medicinal mineral earth was dug up from which a certain Girolamo Claramonte Leontino of Sicily made an ash-like powder, dignified by the name of elixir of life, and a mineral bezoar produced from that same elixir. With the support of the magnates he sold it throughout the land. He first wrote a book about it in Genoa and then published it as a compendium in Naples, in which he prescribed this antidote for various sicknesses with those precautions which he notes in the work, p. 47 ff., for fevers of all kinds, for quinsy, bloody sputum, heartburn, vomit, burning urine, excessive urine, bloody urine, the stone, ischial pain, colic, caruncle, jaundice, vertigo, headache, lues venerea and its symptoms, gonorrhoea, liver disorder, looseness of the intestines, wounds of every sort, abscess, fistulas and stubborn ulcers, for mitigating phthisis, hectic fevers, dropsy, epilepsy, asthma, paralysis, frenzy, gout in the feet and hands, and finally for certain diseases of women. During his life he revealed the secret to no one except

his brother but described it in two books for the princes, his patrons, after his death.

I advise you that Palermo, the seat of the viceroy, offers little of value to the student of medicine. Nevertheless, moved by veneration of the city I ought to say that it has always held physicians in great esteem. According to Baronius, *Majestas Panormitana*, they were granted the golden spurs of nobles as well as saddles and other knightly adornment covered with gold, and Sansovinus, *De Mundo Chronicon*, bk. 3, declares that this privilege was gained from the Emperor Charles IV. I am not interested in spurs and saddles but in the honor of physicians which in other places is despised and scorned.

The very large and handsome hospital of San Bartolomeo in which Filippo Ingrassia practiced his art with great celebrity was built in 1586. Fazeli, bk. 8, describes a spring called Bughato by the Saracens, of which the tepid salt water immediately loosens the belly and cures many ailments according to the experience of the Palermitans. Similar are the holy waters which, according to the excellent Baronius, *De Melita Insula*, ch. 12, were formed into a prodigious cup for the sick by Lorenzo Nasali, a doctor of medicine. I entered it with greater inquisitiveness than usefulness.

There is no reason to speak of San Paolo of which the earth is very rich only in fossil shark's teeth, and the time can be spent to better purpose on other travels in Europe and Africa, so that the mind will not be confused by trivia. Impartial consideration as well as the advice of Tertullian, *Ad Uxores*, bk. 2, suggest that one ought to confine oneself to what is more useful.

Now I must recall my pen from its too long journey so that it may return home and to its original purpose. I have described part of my travels so that by its example I may precede my sons on their intended journey and ensure that

they will be guided by the friendships of the learned, observe nature and neglect nothing of value. I know that for the sake of their studies they are going to travel through the best parts of Europe and that like bees they will suck out the sweetest things but distinguish leisure from necessity. Thus they will not return home filled with useless knowledge, swearing that they do not know why they went, where they were, or on the following day wander over their own tracks, as Seneca put it elegantly, *De Tranquillitate Animi*, bk. 2, ch. 12. The end ought always to be provided for with prudent circumspection lest one be impeded by round about ways when the goal might have been reached by a direct route. Let the eyes see and the ears take in all that is related to the interest of medicine, the various sorts of peoples, the nature of different regions, the qualities of the plants, the variety of diseases, the choice of remedies and whatever, finally, may be said to aid one to hear and to learn with certainty. According to Galen, *Methodus Medendi*, bk. 5, ch. 12, such will assist not only those who live in Italy but also greatly help those elsewhere.

The son of the art will succeed more readily if first he has learned at home the basic and ordinary things useful for the diseases of the country, and then on his travels gains a knowledge of the regions where the various diseases occur and attaches himself to the leading physicians. Sennert, *Methodus Disciplinae Medicinae* and the preface, *Paralipomena*, advised the young physician to do this before he should begin his practice. I believe the physician ought not to neglect this plan on his journey, for I found it to be of value to me. I chose Wale in Leyden, Patin in Paris, Sala in Padua, Severino in Naples and Castelli in Messina, whom I followed as guides in the treatment of the sick. In the course of three years of visiting the sick of Padua I considered Giovanni Domenico Sala the elder as outstanding and would have enjoyed that advantage for a longer time

had not fate removed from us that great physician, renowned in years, merits, teaching and experience. I shall remember him to the end of my life.

You must carefully preserve your health in order that your journey's end may find you healthy and strong and that you may return to your native land free of those diseases which you will spend so much time learning to combat. Not long ago in a farewell poem to my beloved relative, Theodor Fuiren, I sent some brief precepts for the preservation of his health, and since I am now dealing with physicians and the sons of physicians, I shall offer you the same sort of advice.

There are many things worthy of consideration in the *Lilium Medicinae* of Bernard of Gordon, a compendium which that learned and prudent man published in 1305 after twenty years of teaching at Montpellier. I shall excerpt something from the first part of chapter 31, regarding those things which ought to be prescribed for the traveller, and I shall illustrate it with my own remarks because for about thirty years I have taught the art of medicine publicly in our native school. Bernard treats the same subject, although a little more in detail, in *De Conservanda Vita Humana*, ch. 27, which Joachim Baudisius first published in 1570 and which was then added to the edition of Bernard's works published by Rovillius in Lyons in 1574. Here it will be my concern to touch upon the summations of some of the most important matters.

He who undertakes a long journey ought first to purge himself and cleanse his body with phlebotomy, pharmacy, baths, abstinence and similar things, so that the exertion will find him cleansed; otherwise he will be liable to fever, aposteme, severe fluxes and ruptures of veins.

In *De Conservanda Vita Humana* he explains that in this way the bubbling of the humors in the body, by reason of

exertion and change of air and foods, is to be avoided. To each remedy sudorifics must be added which purge the serous matters and other things in the blood and constitution of the body, except when that is done by baths. I know that some are opposed to venesection, persuaded that it ought to be reserved as a remedy for grave illness, but otherwise it ought to be employed as a preventive measure, to guard against serious illness on the journey, for we can meet the advancing enemy more swiftly and surely than we can expel him once lodged.

Gordon's age understood both "journey" and "to journey," and perhaps from the ancient *itiner* and *iter* in Nonnius Marcellus, ch. 8, Isidore, *Origines*, bk. 35, ch. 16, was led to the distinction that *itiner* is the going a long distance and is the exertion of walking. Gordon speaks more elegantly in *De Conservanda Vita Humana*, bk. 1, ch. 27. He who wishes to transfer himself from one region to another

ought accordingly to provide himself with those things which are protection against air, thirst and accidents. Since one is greatly aggravated by thirst in hot regions, let him have pills prepared which he may hold under his tongue or a cooling electuary. Also lemon syrup with cold water may be used, syrup nenupha, violet, rose, vinegar or ribes, if ribes are to be found in the region. Also large draughts of cold, fresh water with a little clear vinegar quench thirst.

In his book *Regimen of Persons in Health*, Hippocrates was the first to advise how the journey ought to be undertaken in warm or cold weather; in the winter, he says, swiftly and in the summer in leisurely fashion or, as Donzellini translates, the journey ought to be made at a slow pace except when it must be made in the heat of the sun. Then, on the advice of Galen in his Commentary, it must

be made swiftly so that as much as possible we may avoid the thirst and heat which afflict the body on a journey of this sort and from which in particular diseases of the bile arise, especially when the journey is made through a desert region, as Hippocrates teaches elsewhere in *On Internal Diseases*. Also the body's condition must be taken into account, as he teaches in *Regimen of Persons in Health*, for it suits the corpulent to make the journey more swiftly, the slender more at leisure or more slowly. Swift motion greatly increases the heat and liquifies the body, but slower motions produce less heat for sanguification and nutrition, as Galen declares in his Commentary.

Fresh lemon juice quenches thirst, but it should be drunk in moderation lest it cause a flux of the bowel. Water must always be tempered with wine lest the stomach be harmed, and a small amount of undiluted wine or a little brandy quenches thirst more swiftly than clear water, especially in the bodies of northerners which are filled with serous humor which is washed away by wine. Others, hotter and drier, whether by nature or whether through the heat of the sun, are more safely refreshed by water. In place of sublingual pills made from the juice of bitter grape or sour juice of pomegranate, take the juice of the white poppy or of purslain which Bernard of Gordon recommends. A plum stone may be substituted with great benefit. Aetius, *Tetrabiblon*, bk. 1, s. 1, praises the fruit of the mulberry for those wearied by a long journey or by great heat, but in cases where the body of the stomach and the liver are dry and hot Orbasius, borrowing from Erasistratus, proposes water mixed with nitre and salt, *Synopsis*, bk. 5, ch. 32. Aegineta, bk. 1, ch. 55, "Regimen of Travellers," recommends a thin polenta in water with a little salt for thirst, and Jo. Bapt. Theodosius, *Epistolae Medicinae*, bk. 39, advised Peter Paul Parisius, a Bolognese professor about to set out for Rome to take a little Neapolitan rose

sugar before beginning the journey, and if the heat required it, to drink it with a little water of endive and borragé. It is the advice of Gordon, *De Conservanda Vita Humana*, bk. 1, ch. 27, that if the traveller lack water and wine on the road, he ought to carry with him purslain and acetosa seeds which may be ground, mixed and held in the mouth when he is overheated.

Impure water or that to which we are not accustomed must be filtered or boiled. Gordon, *De Conservanda Vita Humana*, bk. 1, ch. 27, gives serious attention to this problem of water, so difficult for the heavily burdened traveller. He proposes that native water be carried as far as the first night's lodging when some of the water of that place be added to it. This water is then carried on to the next stop, and so on. However, such a method will suit only the wealthy or the leisurely traveller, and there are other packs with which a horse may be better burdened. Another and more convenient method is to carry cleansed earth from one's native region into which the unaccustomed water is poured and allowed to filter through. But what will you do to accustom yourself to the foreign air which is more harmful than the water? Such matters must be attended to step by step to avoid difficulties.

There are those who are concerned with appearance and fear for their delicate skins on journeys in the sun. Galen, *De Facilibus Parabilibus*, bk. 1, ch. 34, provides a cosmetic remedy for them. First, the body is rubbed with nitre and then anointed with flax dregs mixed with honey. Although a noble spirit will consider such blemish of little significance, yet it is part of hygiene that the skin be open for the regular discharge of effluvia. Otherwise, if one is fearful of the skin being blackened by the sun, let the skin of the face be washed with a well-shaken mixture of egg-white and rose water, a mucilage of quince seeds or a cold emulsion of

the seeds, a fruit unguent with cherry dissolved in rose water or a mucilage of psyllium seeds.

Exhaustion induced by the journey may be overcome with rose water in which camphor has been dissolved, or cherry gum dissolved in vinegar, or distilled water of beans, of mallow or white lilies with milk.

If a fleshy youth, exhausted by the exertion of the journey and the summer heat finds a clean and clear river, let him throw himself in and swim, and he will be cooled, his thirst and exhaustion mitigated and his natural heat strengthened.

However it must be cautioned that river swimming is harmful to bodies with scorbutic infection, but if the pores of the skin have been obstructed a swim in the river will help to open them. Cold things strengthen a healthy, warm body and produce a dense and tough skin which Galen, *De Sanitate Tuenda*, bk. 3, ch. 4, very clearly declares to be a defense against externally harmful things, but for internal things which are harmful if they remain in the body, the exit is blocked.

To ensure that swimming be not harmful Galen, *Methodus Medendi*, bk. 10, ch. 10, requires observation of two things: that the youths be vigorous and accustomed to a cold bath. Gordon calls those fleshy who are not so thin as to expose the nerves to harm from the cold. Furthermore, he borrowed this precept from Galen who, in the same book, adducing examples of travellers in the hot sun, confirms the usefulness of the cold bath and describes the harm which follows its discontinuance. His words deserve to be repeated and fixed in everyone's mind: The greatest proof of this thing is the condition produced by that sort of bath after we have made a journey in the blazing sun. We approach it not able even to speak because of the dryness of the tongue and throat, the whole body dried out like

straw. When we emerge from the cold water immediately we find ourselves to have recovered our normal bodily condition, neither vexed by fever heat, affected with dryness, readily speaking and greatly recovered from thirst. Then regarding the harmful results of a tiring journey after which one does not bathe, he says: For either one becomes half feverish or he continues filled with great weariness so that the head is heavy, especially if the cold has not extinguished the heat. On journeys of this sort young men have been immediately aided by throwing themselves into cold water, especially those who are vigorous and accustomed to a cold bath. In the country where there are no baths they throw themselves into ponds or rivers without the need of medical persuasion but directly by nature whom they are compelled to obey. Avicenna, bk. 1, fen 3, doct. 5, ch. 3, prudently advises that one should not enter the water immediately but wait a little time and then do it gradually. Gordon rightly agrees that the water should be clear and not that turbid or swampy water which conceals its dirt and hides insects which are often a trouble to the feet, sometimes very dangerously so. Recently near the castle of Drothningholm a peasant experienced this to his distress, since walking about in a swampy place and standing barefoot on numbers of leeches, he discovered them to be sucking out his blood, and a short time later he died.

If one must journey in the winter through a snowy and windy region, let him anoint his chest with aregon and maricaton, eat roasted foods and drink pure wine with aromatic spices. If he is poor, let him swallow three whole grains of pepper or thus whenever he desires early in the morning &c &c., and let him have fox skins.

Galen, *De Theriaco*, ch. 16, advised Piso to take theriac when he had to make a journey in the cold winter air, be-

cause it forms an excellent covering for the viscera since it can supply much heat to them. Aegineta and Oribasius, in those places already cited, in their concern for the internal parts advise that the bowel ought to be purged before the traveller undertakes his journey; then it should be anointed and above all the traveller ought to eat hot winter food and drink. The former permits a considerable amount of food, the latter not much. No doubt Aegineta had regard to the heat of the stomach which is more intense in the winter so that it consumes more nourishment; Oribasius feared the joltings on the journey. The very learned Mercurialis, favoring the former, bk. 3, ch. 8, desires that those about to undertake a journey through a snowy region load themselves with food and drink. Avicenna advised that the traveller be filled with nourishment, for great hunger usually attacks those whom nourishment refreshes. According to Aetius, *Tetrabiblon*, 3 s. 1. ch. 6, sour wine, fresh bread put to the nostrils, cheese of good odor, roast pork; Plutarch, *Symposium*, bk. 6, q. 8, in his account of Brutus praises bread alone as refreshment for languishing spirits, to which Giovanni Michele Savonarola, *Practica*, tr. 6, ch. 13, adds wine, and Heurne, *De Ventrīs Morbis*, ch. 8, wine alone, which is readily obtainable on the journey.

In regard to clothing Oribasius and Aegineta prescribe a girdle carefully and fully covering the loins, chest and spine, undoubtedly for protection against the cold which might penetrate the body through these parts. Avicenna recalls the earlier advice in regard to unctions and lotions.

If one must traverse a snowy region and suffers pain in the extremities, let him beware that he does not suddenly approach cold water or fire, since great pain may be caused in the roots of the nails, and it is better that he use tepid water and stay at the farthest limit of the fire so that there is no sudden change of temperature.

Thus Avicenna, bk. 1, fen 3, doct. 5, ch. 4.

When one making a journey in cold weather is given lodging he ought not warm himself immediately but only by degrees, adjusting himself gradually to a little heat and not rapidly approaching greater heat. Indeed, it will be better if he does not approach it at all, but if it is necessary let him approach it by degrees. These things may be illustrated by the example of frozen fruits which when placed in warm water are spoiled, but if in cold, the frozen quality is removed and they are edible. King James of England learned this method of treatment in Norway, for approaching the fire he almost lost a benumbed finger through the too great heat. However, according to Barclay, *Icon Animalium*, ch. 8, a vessel was filled with snow which dissolved as it was carried through the tepid warmth of the dining room, and upon immersion in this the numbed joints were restored.

Indeed, harm induced by cold must be driven away by another cold. Hermann Heyden, *Discursus Medicinales*, 3, uses cold water alone, renewed several times in a half hour or less. He explains that the cold drives the blood toward the viscera, and remaining collected there for a time it acquires greater strength by which, on returning and occupying the extremities, it drives out their immoderate cold and revives the heat. However correct that reasoning, it is certain that this method of treatment may be aided if, on the advice of the same person, during the immersion of the part in cold water the patient takes a draught of wine spiced with nutmeg or cinnamon and liberally warmed, and then if the feet are rubbed with a cloth and greased with common soap at a distance from the fire. Thus on a journey the parts may be affected by intense cold, and on the witness of Galen, *De Differentiis Morborum*, ch. 5, and by daily experience, we learn that many, before they reach

home, are carried cold and half-dead to the hospital. The northerners treat the damaged parts with ash of burned rabbit skins, and if we may believe Olaus Magnus, bk. 11, ch. 23, these evils can be avoided by the use of skins of those animals which are used not so much for adornment as for necessity. He advised that the hands be washed in spirit of wine before we undertake the journey.

If one undertakes a walk (or more correctly, makes a journey on foot), at night let the feet be washed with cold salt water and when dried the joints and flesh around them be greased with a mixture of stag's fat, butter, melted chicken fat and some castor oil.

Today pedestrian journeys are not very common except among soldiers, workmen and students of intelligence but very slender fortune. From time to time, however, for lack of horses we are compelled to go on foot, as I well remember to have happend to me and to my brother Caspar Bartholin, now blessed in heaven, when we were travelling from Provence through Nice, Monaco, Mentone, Vintimiglia, Finale, Nola to Genoa. Those interested in the study of medicine and geography are not always carriage-borne or they would be unable to collect plants and measure the sites, longitude and distances of the earth. Both sorts of travellers ought to follow the precept of Gordon. If the road is muddy, careful attention must be paid lest the feet be wet for a long period of time. They ought to be wiped and dried, and Cardan, *De Rerum Varietate*, bk. 13, ch. 63, recommends the use of the wooden shoes which were once used in France and by our common people, because they do not easily wet through and when damp are easily dried out. However, they are not always suitable because the feet suffer from their hardness—although oakum may be put in them—and no one will willingly imitate this former use of the French. If it is necessary to go among rocks, thin soles

of iron, like those of the Turks, may be put on. And if the journey is short and the season dry, sandals will be useful to prevent the feet from becoming heated. Greaves, high or low boots are suited to horseback riding, but the feet of them are of no value to those making a journey, because if they are cracked and admit water, in swift daily travel it is not possible to dry the wet feet unless the boots are drawn off. Furthermore, it may cause harm to withdraw them when the limbs are cold, and they are not so easily withdrawn as we might wish. Cardan warns that even princes ought to heed these very simple precepts about which there is much to be read in that same book.

If the traveller has eaten too much, let him begin the next day's journey on very little nourishment or not eat at all unless his excessive feeding has been digested; but if he eats too much again, let him vomit it and sleep a good deal.

Here the word "feeding" is employed in that sense in which it is used by Isidore, *Origines*, bk. 20, ch. 2, for immoderate feeding, almost an indigestible meal by which the heart is burdened and the stomach suffers from indigestion. To become gluttonous is as bad a word as the thing itself expressed by the word.

On the journey attention ought to be given to both the manner and the choice of foods. Although Galen in his *Commentary on Hippocrates' Regimen of Persons in Health* denies that the traveller is able to have choice of foods on which to feed or not to feed, since he is compelled to use those which are available, Avicenna, bk. 1, fen 3, doct. 5, ch. 2, condemns vegetables and fruits and whatever things generate crude humors unless it is necessary that they be used for medicine or for lack of other edibles, and he offers a general caution that the food be small in quantity but rich in nourishment. Moreover, Galen, in the same

Commentary, properly condemns the idea of choice if the journey must be made rapidly, when surely Ulysses permitted himself to be bound by no rules. Avicenna, in the place cited, proposes violet oil in which fat or, as others translate it, wax has been dissolved, but while this would be suitable for travellers, they would not wish to eat it ten days later when it had been converted into something like an emplaster. Today, however, our stomachs lack ears, nor are they assuaged by emplasters.

If one travels on horseback, it is best for him to restrict his diet; therefore he must not ride with the stomach filled since such causes danger of headache, nausea, flux of the stomach, griping, stomach ache and indigestion.

Oribasius, *Medical Collections*, bk. 6, ch. 24, borrowing from Antyllus, writes that energetic horseback riding strengthens the stomach, but that if food has been taken in immoderate quantity it is certain to do more harm than good. The stomach's digestion is disturbed by too much motion and the fumes rise to the head just as when an earthen pot is tapped against the hearth and whatever is cooking in it stops bubbling. However, horseback riding and other moderate forms of exercise are helpful when digested nourishment is being distributed throughout the body. Mercurialis, *Ars Gymnastica*, bk. 6, ch. 8, considers the differences between the traveller's use of mules, horses which jolt and those which run. No inconvenience occurs to those accustomed to them, nor to younger persons, unless they mount with a full stomach immediately after dining.

Because of his fear of cholera and diarrhoea, Hermann Heyden, *Discursus Medicinales*, 2, always advised his friends starting upon a journey to carry one or two pills of the ladanum of Theophrastus, and he provided the same, together with the prescription, for his sons studying at the

universities. However, such matters ought to be attended to by the local physician as a precaution for better and more sure treatment.

Early in the morning when the traveller has arisen let him go slowly until the superfluities of digestion have been expelled. Thereafter he may ride.

The morning stroll soothes the bowel, dissolves the sluggishness contracted from sleep, and attenuates the spirits, just as Oribasius, ch. 22, following Antyllus, states that mild exercise ought to precede the greater exertion of horseback riding.

If the traveller has been constipated, let him use some laxative electuary, diaborago, diasena, imperial cathartic, trifera Saracenica, diapruna, oxylaxativum, electuary Ducis, laxative stomachic and diaturbith. Let him add powdered senna leaves, epithymus and polypody as a powder to be used in sauces.

The bowel may be irritated and provoked to obedience by the readily available enema; let cream of tartar be kept in one's box, while extract of rhubarb, agaric and the panchymagogum of Croll can be carried with one in his pouch or a quantity of the tartar pills of Quercetanus, of which a sufficient quantity of pills ought to be prepared beforehand. The remainder of Gordon's remedies nauseate many or have come into disuse.

If the travellers are on the sea, let them select for themselves a place far from the bilge and from all filth, and let them stand as high as possible in colder air. If they become nauseated easily, let them stand near a support and smell baked bread and vinegar. Let them take very little food and drink and may the Lord Jesus give them tranquillity.

Oribasius, *Synopsis*, bk. 5, ch. 33, from Diocles, and Paul of Aegineta, bk. 1, ch. 56, prescribe similar things for nausea and vomiting at sea, and warn prudently that it is not easy or useful to restrain vomit. However, in those who suffer from vomiting, as much precaution as possible ought to be taken lest sea air arouse nausea, for I know of some who in a turbulent sea appear to cast up blood in their vomit, and by that violent motion they may irritate the spleen so that one who customarily vomits blood may finally accelerate his end. Therefore lest nausea arise at sea, an obstacle to merchants and a danger to health, let there be precautionary evacuation of the body before the journey, and the stomach be strengthened within and without by absinthe.

Numbering nausea or upset stomach among other troublesome incidents of sailing, Baverius, *Consilium* 19, advises the following as a remedy. Let one spoonful of preserved and prepared coriander with the best sugar be taken after food and before one vomits. Or let him take what is better, two or three boli of the following prescription: 1 pound of conserved citron, 4 scrupules each of mastich, myrtle, ameos and prepared coriander, finely ground and mixed with the citron. Let a solid confection be made in small pieces. Bartholomaeus Montagnana suggested the same, *Consilium* 2, for the English Father Abbot of Cambrai when he journeyed to the Holy Land. Undoubtedly this was widely familiar in that age, since Montagnana asserts that he had recommended it also to many Frenchmen going to the Holy Sepulchre, together with a stomachal inunction of syrup prepared with dried confections of coriander, roasted filberts, citron, pears and preserved myrobalanum. It is the custom of our sailors to take a drink of salt seawater upon entering the ship. If vomit cannot be prevented and troublesome bile or pituita is vomited from the stomach, Celsus, bk. 1, ch. 3, advises that such abstain

from food or take very little of anything after vomiting bile; but if sour pituita issues, let them take food, but lighter than usual.

Furthermore, those who take long voyages in ships to India suffer from an insufficiency of sweet water, but I have decided not to discuss this matter since few cross the equator for the sake of their studies, while those who feel the need and desire for wealth must be left to make the most of their intelligence and ability, and the wealthy allowed to languish on their vain journeys, as the Apostle James remarked, ch. 1, 11. I am aware that some very learned physicians, notably Bellon, Bontius, Piso and Mar-gravius, with laudable zeal have travelled through the Orient and Occident investigating spices and plants and studying the medicine of the natives. Nevertheless the art of medicine is learned slowly by such long journeys and expenditures of time and would be of little value to our students, and distinguished men have died in public service after providing far more medicine for both Indies than they learned from them.

Whatever the case may be, bad water or the impossibility of obtaining fresh is also a problem on land journeys and shorter maritime ones, but for each misfortune there is a remedy. But water may be corrected with vinegar or aromatic substances such as caryophyllis and laurel leaves, or boiled. Gordon, *De Conservanda Vita Humana*, suggests the addition of wine, vinegar, onions and garlic to all bad water, and euphorbia if we wish to cool it. I have written elsewhere of the dangers of snow. Galen prudently advises that although it may produce no immediately perceptible lesion on the bodies of young men, yet by degrees with the harm developing secretly, in the course of time the joints, nerves and viscera are affected by those diseases and borne with difficulty or not at all.

Sea water may be sweetened by passing it through sand,

just as it is filtered by passing through the earth where it deposits its salt and thicker matter before it issues as sweet water in some bubbling spring. Pierre-Jean Fabre, *Panchymici*, bk. 4, ch. 4, considers that this occurs by an upward evaporation of the more subtle part in that way in which an artificial decoction may be essayed. Sea water may be sweetened by allowing it to percolate through sand collected in three or four sleeves. Some contrive other ways. They distil it through an alembic; they boil it in a cooking pot placing a clean linen cloth over the steam and afterward squeezing it out; or they place wool in a jar through which the distilled water passes out and so collect it.

Chemists extract salt from human urine. Why may not salt be extracted from sea water? The arrangement is the same in each. The sea may be called urine, especially by the Brahman Indians who say that before urine was first passed the sea was not salt. They support this assertion by an incredible account which our former friend Arnold Senguerdus, *Introductio ad Physicum*, bk. 2, ch. 6, repeats from Abraham Rogerius, *De Braminis*, pt. 2, ch. 18. It is an amusing story worthy of repetition. A certain Gastea, a homunculus who was no larger than a thumb or, according to some, the joint of a thumb, but a very holy person who had lived from the beginning of the world and will endure until its end, was walking along the seashore. Mocked by the sea because of his small size, he became very angry and ordered the whole vast sea to gather itself together into a drop which he then picked up and swallowed. After he had done this the Dewetaes, who were demons, said that he had had no just cause for such great anger and that he must realize the great necessity of the sea. Agreeing to the earnest petition of the demon Dewetaes to restore it, Gastea micturated the sea which thereupon as urine became salt.

In regard to the sweetening of salt water through earth, Francis Bacon notes, *Historia Naturalis*, cent. 1, sylv. 2, that

he had read of an experiment in which water passed through ten vessels placed one upon the other, yet the saltiness was not extracted so that it was potable; but salt water passed through twenty vessels became sweet. He considers this as due to the fact that all earth contains a certain kind of nitrous salt which is usually lacking in sand, and therefore earth does not filter water so completely as sand.

Thus is jest and earnest I have added light to Gordon, and I have prescribed a medical pattern of life for travellers which, if they will follow it sensibly, they may return home in sound health, with Jesus directing their course, for, according to a pious proverb of the Arabs, he who hopes without God loses his way. Many other things might be said, but a few precepts will suffice for the honorable who of their own accord are led on to whatever is fine and good and who do not succumb to or are led astray by evil. By virtue and constancy of spirit they will overthrow those monsters opposing their way, which Marsiglio Ficino, *De Sanitate Tuenda*, bk. 1, ch. 7, names as first, the earthly Venus, second, Bacchus and Ceres and third, nocturnal Hecate. Thus Apollo must be summoned from the aether to transfix them with his darts, Neptune from the sea to vanquish with his trident, and Hercules from the earth to wield his club against those monsters threatening Minerva. These things are said to you, my dear and well-loved nephew and sons, not as if you, who have only noble thoughts, were deaf to all virtue and could be moved by no admonition, but that you may realize my paternal affection which even surpasses normal bounds. Despite the forces of nature upon you I hope all things which a parent can hope, yet out of my love for you I believe that I ought to add the following remarks with the desire that your abilities may be strengthened and increased by them and that the faith of your preceptors may be justified through examples of your talents.

I am certain that my judgment will remain unaltered

because you will never forsake such things as you formerly esteemed, unaffected by such pleasures as might turn you from your God and your studies. As you who have studied the far from inglorious subject of astronomy, like travellers of old observe the stars of your country so that you will give thought to your return and not come back so immersed in foreign customs that you will be exposed to the fate of Anacharsis who introduced the customs of the Greeks. Rather, learn foreign medicine so that it will be useful at home, suiting it sensibly to our people and mindful of the preface to Celsus, to distinguish the kinds of medicine according to the nature of places so that one kind is necessary in Rome, another in Egypt and another in France. Then you must seek to contribute to the art those things which are lacking. Admire foreign lands but not to the exclusion of your own, and after what you have seen abroad, grant something to your own country so that although you may believe everything inferior, yet resemble Hormisda who on being asked what he thought of the splendors of Rome, replied that it pleased him greatly to learn that men died there also.

It is possible that fortune may thwart you, but if you have placed your felicity in God and in works of virtue and moderation, with justice more than hope, on returning with God's favor to your native land you will please men overwhelmed by love of you because you please God. By your moral strength covenant with God, the leader of your journey, so that he will preserve you if you deserve it, and except for God no one knows this better than you. Await the precious harvest like a farmer, patiently enduring all things until the harvest arrives. Policrates recommended to the king of the Egyptians that Pythagoras be admitted to the teaching of the priests, but I recommend you to the King of Kings so that you will constantly be aware of the teaching of celestial truth. Thus you will be greatly increased in each

kind of knowledge, your virtue will grow, through you your country will also flourish, your parents will be happy, your friends rejoice, and finally you will obtain the very glorious fruit of your salvation from the consensus of God and your virtues. Again and again I repeat that phrase of Homer: Βάλλε οὕτως, so strive.

Continue, I say, as you have begun, and grant this pleasure to those who have only the kindest feelings for you. Remember that Gallus Caesar spoke wisely to his brother Julian when he said that nothing ought to be preferred to religion. That we may achieve greater perfection virtue warns us to detest falsehood and to pursue truth, and especially does this concern the piety which ought to be preserved toward God lest too intent on nature we lose the author of nature, lest in caring for the health of the body we destroy the health of the soul. And so my sons hasten on your way since what you have undertaken you will scarcely have been able to learn as old men. May all of you continue joyful, vigorous, of blameless lives and achieve your goal.